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No. XIX. OF VOL. II., 1925. No. 5332. Vol. CCIX. LONDON, SATURDAY, NOVEMBER 7, 1925. Founded 1823. Registered as a Newspaper. Published Weekly. Pp. 128—Price 1s. Annual Subscription Inland £2 2s. Abroad £2 10s.

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An Address
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MANAGEMENT OF HEAD INJURIES.

Delivered before the Warwick and Leamington Medical Society on Oct. 31st, 1925,

BY WILFRED TROTTER, M.S. LOND., F.R.C.S. ENG.,
SURGEON, UNIVERSITY COLLEGE HOSPITAL.

WHEN one deals with any part of the surgery of head injuries it is natural to approach the subject by the way of theory. This is because there is no department in which what we know of practice is more closely and clearly related to what we know of principle, and where the management of actual cases proceeds more directly from pathological understanding. Little as we may and do know of the ultimate physiology of the brain, in so far as the relatively simple processes set going by mechanical injury are concerned, we can already say in general terms and with some precision how injuries are produced, what injuries are likely to occur, and what effects on function they cause; we can see in the majority of cases the meaning of symptoms as they arise; and we can direct such treatment as is possible by reason instead of having to depend on clinical intuition to the extent that is necessary elsewhere. It would, therefore, be wholly logical to begin what I have to say by a general statement of theory from which the necessary practical applications could easily be made. It must be admitted, however, that the theoretical route is a roundabout one, and one which would take us over ground that nowadays, and especially on this occasion, may be assumed to be in great part, if not wholly, familiar to us all. I propose, therefore, to take for granted as common knowledge the established facts concerning the special features of the cerebral circulation, the relation of circulatory disturbance to symptom production, the mere mechanics of cranial and cerebral injury, and the general body of fundamentals established by experiment and inference from it. We shall thus be able to direct our attention especially to matters of treatment and to deal with them in a severely practical way.

THE RELATION OF CEREBRAL SYMPTOMS TO CEREBRAL LESIONS.

It is a very old custom to describe the lesions that may be met with in cases of head injury as (*a*) intracranial hæmorrhage, (*b*) cerebral laceration, and (*c*) cerebral contusion. In clinical work the attempt to distinguish between the last two is of little or no value, and the clinician need concern himself only with the two broadly distinguishable types of hæmorrhage on the one hand, and lesions of the contusion-laceration type on the other. Now it is well known that the brain is peculiar in showing more clearly than most other organs a gradation of symptoms according to the *intensity* of the lesion that causes them. This series of symptoms of graduated severity has long been roughly divided into two classes, the more severe being called "paralytic," the less severe "irritative." The term irritative as applied to the symptoms called forth by the less intense lesions is, for reasons we need not now discuss, unsatisfactory in theory and misleading in practice; it might very well be replaced by the term "sub-paralytic," which has the advantage of being without fallacious pathological implications. Symptoms of paralytic type correspond with maximal interference with the circulation in the affected part, that is anæmia, while symptoms of sub-paralytic type correspond with a less intense circulatory disturbance, that is venous congestion or stasis. In traumatic cases the abnormal pressure on a given part of the brain, necessary to produce anæmia in it, can in general be produced only by grossly extravasated blood; on the other hand, the pressure on a given region necessary to produce venous congestion can be readily produced by the swelling of contusion. Thus we have two pathologico-clinical sequences fundamental in dealing with head injuries—namely, hæmorrhage, anæmia, paralytic symptoms; and laceration-contusion, venous congestion, sub-paralytic symptoms.

For the uses of practice, then, we must learn to regard paralytic symptoms as conclusive evidence of hæmorrhage; such symptoms will tell us, moreover, not only of the presence of hæmorrhage but also of its situation. It must be admitted, however, that definite local hæmorrhage is a comparatively rare event even among the graver cases of head injury. It is obvious, in fact, that the essential damage always tends to be in the nature of contusion-laceration, while hæmorrhage is an occasional complication due to the incidental tearing of a vessel. Thus, even in a case where hæmorrhage can be recognised and dealt with, the surgeon must always recognise that behind the condition he has been fortunate enough to be able to treat, there probably exists more or less severe and widespread laceration-contusion which may yet deprive him of ultimate success. When we speak of the paralytic symptom as characteristic of hæmorrhage we must bear in mind, of course, that all hæmorrhages produce also sub-paralytic symptoms even more constantly and on a wider scale than paralytic symptoms; the latter owe their extreme importance in diagnosis, then, to being the sure index of a pressure on the affected part of the brain greater than can be produced by the swelling of a mere contusion. Conditions of the contusion-laceration type make up the great body of head injuries as we meet them in practice, and, in consequence, the symptoms we most commonly observe are of the corresponding sub-paralytic kind. Among such symptoms may be irritability, restlessness, delirium, drowsiness, headache, giddiness, vomiting, rigidity, twitching, convulsions, alterations of reflexes, temperature, pulse, and respiration. In occasional cases there will be superadded to the symptoms of this group one or more of the true paralytic variety, indicating that the corresponding region is more profoundly affected and is the seat of hæmorrhage. Among such symptoms may be coma, monoplegia, hemiplegia, aphasia, hemianopia, dilated fixed pupil, loss of superficial abdominal reflex, extensor plantar reflex.

THERAPEUTIC GROUPING OF CASES.

It is plainly impossible to make any complete and logical clinical classification of the almost infinitely various material offered by head injuries. Nevertheless there is possible a certain rough grouping, according to the necessities of treatment, which is useful in description and of some practical value if its distinctions are not too rigidly enforced. We may recognise then the following main therapeutic groups: (*a*) Intracranial hæmorrhage, usually, of course, superimposed on more or less contusion-laceration. This group, relatively small in numbers, owes its great importance to the lesion being usually progressive, and, as such, necessarily fatal unless surgical treatment is applied. Exact diagnosis and adequately prompt operation are therefore urgently called for. (*b*) Cases of severe contusion-laceration without recognisable hæmorrhage. These make up the great bulk of clinical material met with in civil practice. As they display no focal symptoms, these cases are often regarded as not calling for operative treatment. Many are rapidly fatal; in those where recovery occurs there is often a long illness, a longer convalescence, and a residue of disabling sequels. The group is important because of its size, the frequency of incomplete recovery, and because operative treatment in judiciously chosen cases is of value. (*c*) Cases of mild contusion-laceration. These owe their importance to the frequency with which they still pass unrecognised because of the absence of grave initial symptoms, to the disabling nature of the symptoms that develop, and to the fact

that treatment (often without operation) is effective. (*d*) Local brain injury with external wound, including gunshot wounds and all kinds of punctured or depressed compound fractures of the skull. This class is included merely that we may recognise its importance in passing. The kind of treatment needed in these cases is now so generally understood that discussion of it is superfluous. It is now necessary to deal in some detail with the first three groups defined above.

INTRACRANIAL HÆMORRHAGE.

The classical picture of an intracranial hæmorrhage over one cerebral hemisphere is familiar to us all. There has been a severe accident, concussion, a more or less complete return to consciousness, then drowsiness deepening to coma, hemiplegic signs, a dilated fixed pupil on the side of the hæmorrhage, slow full pulse, slow stertorous respiration, and a rising blood pressure. It is still perhaps necessary to point out that this picture, often regarded as characteristic of hæmorrhage, is that of a far advanced, indeed, nearly terminal, stage. The state of the pupil indicates that pressure enough to cause paralysis has already reached the mid-brain; the pulse and respiration show that sub-paralytic changes have actually reached the medulla. It should, of course, be our object to make the diagnosis in cases of this class long before so advanced and dangerous a state is reached. As has already been pointed out, the appearance of one definite unilateral paralytic symptom should be enough to indicate the presence and approximate site of the hæmorrhage.

Aberrant Types.—While traumatic intracranial hæmorrhage is usually a rapidly progressive condition becoming manifest within a few hours of the accident, and proving fatal if untreated within a few days, much milder forms, both as to intensity and duration, are occasionally met with. In some of these the condition is scarcely to be distinguished pathologically and clinically from a superficial contusion. A comparatively common type is that in which after a week or ten days of rather generalised "irritative" symptoms the development of Jacksonian fits points to a focal lesion of the Rolandic area. Another well-defined type is the *chronic subdural hæmorrhage*, in which, after an accident (often apparently trivial), there is a prodromal period of many weeks with minor symptoms (headache, slight mental changes) followed by the onset of coma. This coma is apt to show remarkable and characteristic intermissions, and the alternating mental states may merge into one resembling advanced dementia. The lesion found is known as "pachymeningitis hæmorrhagica interna," and is an encysted traumatic hæmorrhage. I shall not attempt to remind you of the very familiar details of an operation for intracranial hæmorrhage, but shall venture to make a few remarks on two matters rather of principle than technique.

Multiple Hæmorrhages.—As a rule an intracranial hæmorrhage is single. Exceptions are, however, not very rare; extradural and intradural hæmorrhage may occur on the same side, and bilateral hæmorrhages are not uncommon. If therefore after the evacuation of an extradural hæmatoma the dura is found to be very tense, it should always be incised forthwith as a precaution. Again, if after the apparently successful evacuation of a hæmorrhage on one side symptoms of abnormal intracranial tension persist unduly, the possibility of a hæmorrhage on the other side must very seriously be considered. In the case of chronic subdural hæmorrhage the lesion is far from uncommon on both sides. These cases are of especial importance, since if both hæmorrhages are not evacuated at the same operation the patient is very unlikely to survive.

The Urgency of Operations.—In dealing with head injuries it is of great value to cultivate a sense of the urgency of any necessary operation that shall be both adequate and reasonable. While guarding against the terrible mistake of undue delay we must be on our guard against being led into untimely action by an atmosphere of false emergency. Rapidly extending lesions, capable of producing widespread paralytic symptoms within a few hours, are invariably fatal and not to be helped by surgery; cases capable of recovery have a margin of safety of more than a few hours, and should have the benefit of a careful diagnosis and deliberately designed operation. It may, indeed, even be doubted whether many lives have been saved by operations much within 24 hours of the accident. In grave cases of head injury there is almost always some contusion of the medulla and pons; it seriously increases the danger of the condition, and the knowledge of its probable presence is a strong reason against any but quite indispensable operations.

SEVERE CONTUSION-LACERATION WITHOUT OBVIOUS HÆMORRHAGE.

As we have already said, this is perhaps the commonest clinical picture presented by cases of severe head injury. From the reaction stage of concussion the patient passes into the condition more or less covered by the old clinical term "cerebral irritation." Some affection of consciousness is the most constant feature. The patient is usually drowsy and inert, but hypersensitive and irritable to stimulation by day and restless or even delirious by night. Sometimes the inertia is replaced by delirium and maniacal excitement that may last for weeks. The reflexes may become generally brisk after the effects of concussion have passed off; there may be rigidity and twitching of the limbs. The pulse and respiration are apt to indicate bruising of the medulla by being persistently slow, and there may be periodic phenomena of an incomplete type. Consciousness is scarcely ever actually lost, and the patient can usually be roused to give quite complicated responses, though after recovery there is little or no memory of this period.

A considerable number of patients succumb, usually to increasing bulbar involvement and a terminal pneumonia. Many recover slowly even after weeks of partial unconsciousness. The patients who recover spontaneously are particularly likely to show slight mental changes, epilepsy, or—most commonly of all—persistent severe headaches. The condition here is an extensive contusion of the brain with secondary œdema. Since the brain is rigidly encapsuled by the skull the state of affairs is different in two important respects from that which obtains in any other organ similarly bruised—(*a*) free swelling is not possible, and thus the extravasated blood of the contused tissues and the œdema exercise a certain pressure on the vessels and embarrass the venous return, hence follow venous congestion and subparalytic symptoms; (*b*) since the circulation is persistently embarrassed the absorption of extravasated material is very greatly delayed and is apt to be incomplete even for years; the persistent headache which is an evidence of abnormally high intracranial tension is proof of this.

Treatment.

Although many patients ultimately recover, many are seriously ill for long periods, and a large number suffer from disabling sequelæ. Since the inability of the brain to undergo adequate compensatory swelling is the cause of the symptoms, the rational treatment is obviously to do a decompressive operation in order to allow room for such swelling to occur. Experience confirms this view, and the only points of any difficulty are the determination of the cases in which no satisfactory spontaneous recovery can be expected, and the choice of the best time to intervene. Surgical treatment should be advised when at the end of the first week serious mental changes are present (profound drowsiness and inertia, delirium, or mania) and seem to be fairly stationary. In a few very serious cases operation may be called for at an earlier date, but generally the choice of a time is not a matter of great urgency, though of course once it has been decided that intervention is necessary there is no object in delay.

The operation to be done is the making of a fair-sized decompressive opening low down in the right temporal fossa. It is sometimes necessary to make a bilateral opening in order to give adequate relief; in such cases there are probably hæmorrhages that have escaped diagnosis.

MILD CONTUSION-LACERATION.

We now come to what is in some ways the most important part of our subject. The grosser and graver kinds of head injury have long attracted the attention and interest of surgeons; those which we are now about to consider have been comparatively little noticed and until recently not very thoroughly understood. Nevertheless they are met with commonly in practice and are the cause of persistent and distressing symptoms. I refer to the slight or moderate grades of cerebral contusion that are often left by accidents which seem at the time to have produced no serious effect. The symptoms corresponding with such relatively minor cerebral injuries often appear clinically in the form of sequelæ to an accident that had been regarded as unimportant. They rarely have any focal characters, but are manifestations of a disturbed intracranial tension; thus it comes about that their cardinal feature is headache, though this may be accompanied by other less conspicuous elements such as giddiness, slight changes of disposition, and minor mental and physical disabilities. So clear, however, is the primacy of headache among the clinical phenomena that one refers habitually to the cases under the term "contusion headache."

Contusion Headache.—The condition usually declares itself within a few weeks of the accident; if the patient has been laid up the onset of headache often follows the resumption of active life; sometimes, and especially if there has been no period of rest, headache comes on from the first and increases in severity. In well-marked cases the headache occurs in attacks often many hours in duration. The attacks are brought on by excitement, undue exertion of mind or body, and fatigue. Between attacks the patient may feel perfectly well and be capable of leading an active life. Quite commonly, however, in the intervals there is some evidence that the intracranial tension is disturbed; abrupt raising of the venous pressure, as by coughing, straining, or stooping, may cause a transient discomfort, swimminess, or even pain in the head. The headache may be of extreme severity, and is of a throbbing, bursting character. It makes the patient intolerant of movement, effort, or interference, and he is apt to become irritable and sometimes even dangerously enraged if he is not left to himself. The headache is usually relieved by rest in bed in quiet and darkness, and the attack often ends if the patient can get prolonged sleep.

Such symptoms are met with in all grades of severity. The most characteristic features are the throbbing quality of the headache, its paroxysmal character, and the tendency of the attacks to follow some cause recognised by the patient. Contusion headache of greater or less severity is very common, and as it is an extremely distressing and disabling complaint the diagnosis is of great importance. I do not propose to discuss the problem of diagnosis in detail, but shall limit myself to certain general and perhaps rather dogmatically phrased statements. The majority of cases are well marked and unmistakable, a few cases are very difficult, and will cause doubts as to a neurosis or mental disease.

It is a fallacy to suppose that neuroses are particularly common as sequels of head injury, and there can be no doubt that many symptoms have in the past been regarded as neurotic which are, in reality, due to minor injuries of the brain, producing persistent disturbances of intracranial tension. A complete absence of the classical signs of focal cerebral injury is usual in cases of contusion headache, and in no way conflicts with the organic origin of the symptoms.

Treatment.

When the diagnosis is complete, treatment of contusion headache can be undertaken with every reasonable confidence of a satisfactory result. It should be entered upon under the guidance of a very clear conception of the pathological condition that is to be contended with. The brain has been bruised, and by a mechanism that has already been mentioned resolution is rendered difficult and prolonged. Meanwhile the swollen part encroaches upon the strictly limited space available for the brain and its circulatory movements. The result is more or less interference with the venous side of the cerebral circulation, and a tendency for the intracranial tension to be maintained at a slightly raised level. This state of affairs, while it may of itself cause no symptoms so long as the patient is at rest, renders intracranial conditions unduly sensitive to disturbance. If as the result of active exercise there is an increased arterial inflow, the restricted venous outflow at once reveals itself by causing a rapid rise in the intracranial tension. Similarly, if as the result of the patient stooping or straining the venous pressure in the jugulars is raised, this tells back at once on the already restricted venous outflow from the skull and again the pressure rises. It is disturbances on the venous side which are by far the most effective in adding to the already raised intracranial pressure. Only when the arterial circulation is in its most placid state, and the venous outflow at its freest, is it possible in some degree to prevent the intracranial pressure from rising to the point of producing symptoms. Thus it is that rest in bed is the foundation of the treatment of cerebral contusion. It has long been known and insisted on that prolonged rest after head injuries is the best and an indispensable prophylactic against the development of sequelæ. The theory of cerebral contusion confirms this very old clinical doctrine in the strongest possible way.

Even when contusion headache is definitely established, rest in bed is essential to treatment and may in itself be effective. Its purpose is to prevent the attacks and to maintain conditions favourable to resolution of the bruise in the brain. A period of three or four weeks in bed may be necessary in severe cases.

Another important line of treatment by which the abnormal intracranial tension can be influenced acts through the cerebro-spinal fluid. As in other conditions accompanied by œdema of the brain, there is in cases of cerebral contusion a certain accumulation of cerebro-spinal fluid which tends to contribute to the disturbance of the intracranial tension. There are two ways in which this excess can be influenced: (*a*) by lumbar puncture, (*b*) by administering hypertonic saline solutions. Lumbar puncture is most valuable in its place, but, unfortunately, it cannot be repeated without limit. It has its chief value as an emergency measure in severe attacks, but there is no doubt that its effect in giving relief is often more prolonged than might be expected. Hypertonic solutions of magnesium sulphate administered by preference in the form of an enema of 3 oz. of the salt in 6 fl. oz. of normal saline daily, or even twice daily, is said to be capable of producing very obvious relief of intracranial pressure symptoms. Manifestly its use cannot be carried on indefinitely, but it may well be tried for the relief of severe attacks. Another method of exercising a steadily favourable effect on the intracranial condition, and so encouraging resolution of the contused part, is a very simple device which I have found of surprising value in the relief of headache due to moderate increases of intracranial tension. This is to make use of the influence of posture in favouring the venous outflow from the skull. It is sometimes forgotten how considerably the recumbent position raises the pressure in the jugular veins and thus checks the venous current from the brain. This is well shown in a patient with an opening in the skull. In the sitting position—supposing the intracranial pressure to be normal—

the scalp sinks deeply into the cranial opening; lying down the depression is filled up to the level of the surrounding skull because the intracranial pressure closely follows that of the veins and varies strictly with the jugular pressure. It is probably for this reason that so many headaches of intracranial origin—including those of cerebral tumour and even migraine—begin in the morning, so that the patient wakes to the knowledge that he is going to have an attack. It is usually an easy matter to train a patient to sleep propped up in bed, and in my experience the acquiring of this simple accomplishment has frequently been followed by an astonishing diminution in the frequency and severity of headaches.

We have thus a series of relatively simple measures of proved value in dealing with contusion headache. Two I should regard as indispensable and for prolonged use—rest in bed and a rigid enforcement of the propped up position; two should perhaps be chiefly reserved for occasional use and the relief of definite attacks—the administration of hypertonic salines and lumbar puncture.

If thorough treatment by these means for a period of a month or so has proved ineffective, the making of a small decompressive opening low down in the right temporal fossa should be advised. If the contusion headache has followed a local injury of the skull, as was so often seen in the wounds of war, the opening should be made at the injured spot. That typical contusion headaches will be arrested by an adequate decompression is one of the most trustworthy generalisations in surgery.

The largeness of the subject has, of necessity, made our exposition of it both bare and dry, and has prevented the distribution of emphasis on its various parts as one would have wished. In conclusion, therefore, I may perhaps be allowed once more to call attention to the practical value and to the interest to be obtained from following cases of head injury in the light of physiological and pathological principle; to the great frequency and importance of the minor injuries to which the brain is subject; and to the value in them of non-operative and, so to say, physiological methods of treatment.

Cameron Lectures

Delivered at the University of Edinburgh on Oct. 19th, Oct. 20th, and Oct. 22nd, 1925.

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LECTURE III.*—INTRACRANIAL TUMOURS AND THE SURGEON.

"In einem gewissen Gegensatze steht die Operation der Hirnabscesse zu der der Hirngeschwülste. Für die erstere leistet die Diagnose noch zu wenig, die chirurgische Technik aber genug, für die letztere hat umgekehrt die Diagnose schon so viel gegeben, dass Nothnagel z. B. sie für eine verhältnissmässig leichte erklärt, unsere Technik aber, soweit sie sich auf eine ausreichende Umschneidung, Blutstillung und Vermeidung des gefährlichen Hirnödems bezieht, ist durchaus noch im Rückstande. Vielleicht gelingt es, sie zu bessern und zu vervollkommnen."—*Ernst von Bergmann, 1889.*

NEURO-SURGERY: OLD AND NEW.

IT has been said that three stages—optimism, pessimism, and adaptation—must invariably be passed before any revolutionising principles of surgery can become firmly established. After the introduction of surgical anæsthesia, in which Edinburgh had a hand in the person of James Young Simpson, under whose spell Andrew Cameron must have sat, and after the still more important discovery of surgical cleanliness, the outgrowth of Lister's work which Cameron did not live to see, there was a widespread feeling that the chief obstacles to operations on any part of the body had been overcome. This in a measure was true; but when the surgeon came to attack such non-traumatic lesions within the body cavities as the physician was encouraged to surrender to him, difficulties unthought-of were encountered. It was necessary by slow and devious steps to devise a special technique to overcome these difficulties before the stage of pessimism on the part of the profession as a whole could be overcome.

The first successes were in the lower abdomen, and operative gynæcology, in which another Scotsman, Lawson Tait, had no small part, came into being. Since then the surgeon has been slowly working his way from the lower to the upper abdomen where the liver and gall-bladder, the stomach and pylorus, the kidney and spleen, have, in turn, delayed him. Perfected methods and a novel technique had to be devised before he ventured above the diaphragm into the chest for purposes other than to drain suppurating cavities; and he is now, last of all, coming to feel very much at home in the cranial chamber. But this is so recent a happening that many of us have vivid recollections of the wave of discouragement and pessimism which came on the heels of the generally unsuccessful operations for brain tumours undertaken during the last two decades of the century just gone.

There were some neurologists, among them that Nestor of your local profession, Byrom Bramwell, who, insisting even at that time (1888) that intracranial tumours were common, remarked that the soft brain tissue would seem to be "as fine a forcing and feeding ground for new growths as Koch's nutrient jelly is for micrococci and allied organisms"; and it was stated by Bruns, I believe, not long after, that for a physician to assert he had never encountered a brain tumour in his wards or practice was equivalent to an admission that it had passed under his eyes undiagnosed. But these were voices in the wilderness, unheeded; and in the days before the Wassermann reaction every obscure intracranial lesion was regarded as a potential case of cerebral syphilis. This, at least, was the more probable diagnosis, and, at any rate, something might be done for it therapeutically. Better so than to run the risks of a surgical exploration, with its almost inevitable sequence of a broken-down scalp wound, a fungus cerebri, a cerebro-spinal fluid leak and ultimate fatality, should the condition actually be due to tumour. Such was the lamentable outcome of that first historic operation for a clinically localisable tumour, which Hughes Bennett had the courage to advocate, and which, on Nov. 25th, 1884, his colleague, Rickman J. Godlee, performed.

The young neuro-surgeon of the present day, who only gathers from hearsay or from pictures in his text-books what the horrors of a fungus cerebri used to be, can have no conception of the calamities which commonly followed the intracranial operations for tumour as they were done 30 years ago—unless he looks about him in clinics where old-time methods are still practised by general surgeons blind to what has been going on about them in the development of a specialised technique for these complicated procedures.

Among many others in Great Britain who were pioneers in this work we may salute two outstanding figures: Sir William Macewen, whose major contribution was on the subject of the intracranial infections, now the smallest part of our work; and Sir Victor Horsley, whose troubles are for all to read in the contemporary pages of the British medical weeklies. He was outspoken in ascribing them, right or wrong, to the reluctance of his medical colleagues to surrender their tumour cases, except as a last resort, when it was too late for surgery to accomplish much of anything. But even the echoes of a dispute as to how long a patient suspected of tumour should undergo a

* Lectures I. and II. were published in THE LANCET of Oct. 24th and 31st respectively. They are slightly abridged for issue in our columns, and will be published shortly as a small volume, dedicated to a group of young collaborators.—ED. L.

course of mercurial treatment before the surgeon was called in have long since died away[1]; and looking back on all this from our present standpoint, one hardly knows which of the two parties needed the more sympathy—doubtless a third party, the patient, most of all. . . .

In the course of a sojourn in the Hallerianum in Berne, spoken of in my first lecture, I had learned many things about states of intracranial pressure which were subsequently of more value to me than the acute tension phenomena which were made the chief subject of my reports. They were things, I am sure, long known to others, though it was new to me: that the sinuses are not rigid, but easily collapsed; that respiratory cessation long precedes cardiac failure; that the falx may be markedly distorted by pressure against one hemisphere; that the brain can be widely dislocated without damage if there are contralateral openings; that pressure is not equally distributed throughout the cranial chamber; that choked disc and exophthalmos can be produced by intracranial tension, and so on.

Some degree of familiarity with these matters proved invaluable in my early intracranial operations, and I cannot too strongly emphasise the desirability of anyone proposing to engage in the field of neurosurgery getting his first experience with operations on the central nervous system in an experimental laboratory, particularly should it be one where the ritual of surgical asepsis is observed. I had the further good fortune at the end of this period to pass some months with Prof. Sherrington at the time when he was re-mapping the motor cortex of the higher anthropoids, and as I was permitted to assist at some of these historic operations I became familiar with his methods of unipolar cortical stimulation, which subsequently stood me in great stead.

Armed with these experiences and with a practical, home-made hæmodynometer—an instrument the model of which I had seen in use during a visit to Riva-Rocci's clinic in Pavia, and which promised to enable one, during the course of a serious intracranial operation, to keep a fairly continuous plotted record—comparable to the kymographic tracings on which I had come to depend; armed, I say, with this small equipment, untutored in clinical neurology, and wholly ignorant of neuro-pathology, I returned to Baltimore and lay in wait for I knew not what. Certainly brain tumours could offer no expectation of livelihood, for up to that time, a dozen years since the opening of the Johns Hopkins, there had been admitted to the surgical service only 12 cases of brain tumour, most of which had been brought to light at autopsy.

A successful brain-tumour operation was a rarity, not the rule; and up to the beginning of the century treatises on the subject were apt to tabulate the 50 odd cases which had so far been reported in the entire literature as having survived an attempted extirpation. However, though the early hopes that these performances might safely rest on the tripod of anæsthesia, antisepsis, and localisation of cerebral function had been dashed, these pioneer operations of the 'eighties and 'nineties, in spite of their discouragingly high mortality, had disclosed an important fact which proved the beginning of a new era.

Matters Technical.—Needless to say, the victims of intracranial tumours ordinarily have headaches, and in course of time get blind; but many had observed that even though a cranial opening might fail to disclose a tumour—as it usually did—and even though paralyses or worse might ensue, the patient's discomforts for a time might not only be greatly alleviated, but, what was more surprising, his choked discs might subside with preservation of vision. These, then, must be purely pressure and not toxic effects of the growth; and Horsley's brilliant mind was quick to grasp and promulgate the idea of a premeditated craniectomy for the purpose of palliating the more distressing symptoms of these common lesions, irrespective of their nature and situation.

These early palliative operations, for which Jaboulay, I believe, introduced the term *trépanation décompressive* (1896), were usually made haphazard in any convenient portion of the skull, until Sänger, of Hamburg, suggested that the bone defects had better be made over the right posterior hemisphere, a relatively unimportant area of the brain from a functional standpoint. But the resulting protrusions covered by scalp alone were often so unnecessarily large and unsightly that other silent areas were sought, particularly ones where an undue herniation might be restrained by a securely closed muscle covering.

So it was that the temporal and suboccipital regions—on the one hand for supratentorial, and on the other for infratentorial lesions—were hit upon as preferential areas for the purposes of decompressions. And though these purely palliative procedures are nowadays less and less often requisitioned, they served a most useful purpose and saved a deal of suffering in their time. What is more, they served so to alter the attitude of the profession towards tumour operations that for a patient to become blind from an intracranial growth without some effort having been made to prevent this disaster, whatever else might be accomplished, came to be looked upon as reprehensible.

The old-time exploratory trepanations, which had unexpectedly resulted in giving relief from pressure, had usually been designed to expose lesions of the paracentral convolutions, and it was customary for the neurologist, in accordance with prescribed measurements and angulations, to mark out the fissure of Rolando on the scalp prior to the operation. Unfortunately, however, the very fact that tumours in this surgically accessible region were most frequently diagnosed, made it inevitable that a hemiplegia would ensue from discontinuity of the pyramidal fibres in the subsequent herniation.

Wagner, to be sure, had long before introduced the idea of an osteoplastic flap (1889), but this, in the hands of those who first attempted it was a matter largely of mallet and chisel, or of slowly nibbling a gutter in the bone with special forceps, of which there were many ingenious patterns; and it was not until the wire saw of Gigli was employed (1897) for the cutting of these bone flaps that the temporary osteoplastic cranial resection for exploratory purposes came to be a really practicable operation.

Neither patient nor surgeon likes the idea of a large cranial defect, however great the relief from pressure headaches; and both parties were in equal dread of the paralytic consequences of a protrusion involving the paracentral convolutions. The Wagnerian procedure promised to offset these complications, but unfortunately it was soon found that when an osteoplastic flap was turned down and the dura subsequently opened in the presence of tension which could not be relieved, it might be impossible to replace the flap because of the bulging brain; and it was for this reason, I assume, that Horsley abandoned the making of these flaps as a matter of general principle. The difficulties, however, can usually be overcome by what is known as "a combined procedure," in which the large flap essential for thorough exploration of the hemisphere is reflected with its base to the temporal region where, under the protecting muscle, a bone defect with opened dura can be made in the same situation and with the same purpose in view as when the ordinal subtemporal decompression is made from outside in. In the general run of cases the outward dislocation of the relatively "silent" temporal lobe then makes possible the replacement of the bone flap. . . .

But essential as the technical features of craniocerebral operations may be, these are dull matters to most people, and I prefer to dwell on what goes

[1] Horsley, in 1890, pleaded with the clinicians to agree on a definite probation period of drug treatment and suggested six to eight weeks, instead of as many months, as the time limit. Three years later Allen Starr proposed as a compromise a preliminary three months' trial with drugs, after which, if cure had not resulted, surgical measures should be resorted to.

before and what follows them; on the preliminary studies which lead up to the diagnosis; and on the histopathological nature of the lesion so far as it affects prognosis and the surgical end-results. If the tumour question is to be covered as a whole, these are its more intellectual aspects; and my pupils, I am proud to say, have made contributions to diagnosis and symptomatology which are no less important than the additions which may have been made to mere craftsmanship.

Matters Diagnostic.—There were two important instruments—the ophthalmoscope and the perimeter—with which at the outset we had to familiarise ourselves, for it was an imposition to ask our ophthalmological colleagues to give the time necessary for the often daily observation of the changes in eye-grounds and fields that we were anxious to follow. Fortunately for us, the invention of the electric ophthalmoscope at about this time made possible the bedside employment of this indispensable instrument and did more to popularise its use than the vigorous though vain appeals to the profession, even of such as Hughlings Jackson and Clifford Allbutt, in the years gone by.

The perimeter of the two is the more difficult instrument, for it entails an interpretation of the patient's subjective responses, and Dr. Bordley and I were led at the very outset into a misinterpretation of our findings in describing the interlacing of the colour fields as an early evidence of pressure. However, this error, soon corrected, proved to be not wholly a liability, for it encouraged us and others to employ perimetry in the routine examination of all tumour cases; and this led to a series of papers on the distortions of the visual fields with Dr. George Heuer and with Dr. C. B. Walker, whose contributions to the subject are well known to ophthalmologists. Perhaps the most valuable disclosures were: (1) the progressive changes in the field mentioned in my last lecture as accompanying the usual hypophysial adenoma; and (2) the advancing homonymous defects on which we place great reliance in the diagnosis of temporal lobe lesions.

Though a brain tumour, even a large tumour as is well known, may be accompanied by no changes in the eye-grounds or fields, when these changes are present, as one or both usually are, and are followed from day to day, they prove the best possible gauge as to whether the process is advancing or receding. The neuro-surgeon, in short, needs for his daily use the ophthalmoscope and perimeter, no less than the physician, in following the condition of a consolidated lung, needs his stethoscope. No disinterested second party can be satisfactorily called upon for these purposes. What happened when the anatomist ceased to make his own dissections and employed a barber for the purpose is a matter of history; nor is this a far-fetched comparison.

These instruments, to be sure, the ophthalmoscope and perimeter, were in the hands of our predecessors, over whom, however, we are enormously advantaged by another instrumental aid to diagnosis, the X rays. Stereoscopy and the improvements in rontgenography which have followed the introduction of the moving diaphragm enables us in many cases not only to confirm our clinical diagnoses, to assure us by tumour shadows of the nature of the lesion and its precise situation, to lateralise it either by what Dr. Naffziger calls the pineal "shift," or by Dr. Dandy's method of ventriculography, but at the same time the rays give us promise of therapeutic aid as well.

But with all said and done, no instrumental aid to diagnosis can equal in importance a detailed and exact history of the symptoms in the chronological order of their appearance. This must ever remain our chief reliance, and the ability to elicit a dependable and correct clinical story is an art requiring perhaps even greater experience and skill than the making of a detailed neurological examination.

In assembling the clinical and laboratory data he regards as essential, the neuro-surgeon has evolved his own peculiar programme. This differs considerably from that generally followed by neurologists, since we have a somewhat different therapeutic objective; and in view of the great number of patients under the suspicion of harbouring a brain tumour who pass through our hands it would be humiliating did we not become more adept in making a diagnosis and giving a prognosis than those who see these cases less often, even had we not the added advantage of immediately checking our conclusions and correcting our mistakes by the invaluable experiences of exposing and dealing with the lesion on the living subject.

An operating surgeon is a peculiar animal. Of this perhaps no one is more aware than surgeons themselves, should they stop to analyse their conditioned reflexes. There is an unexplainable mental process that precedes what is known as a surgical inspiration, or to use an undergraduate's vulgarism, a surgical "hunch." This means nothing more than that after blindly puzzling and agonising over a difficult problem in the effort to determine just what course to pursue, there is a sudden and unaccountable clearing of obscurities, and an operator enters upon his task with a conviction of just what he will encounter and just what will happen, as though he were possessed of a sixth sense. I think most surgeons are more or less conscious of this state of mental preparedness for what to others may seem a desperate throw. But there is nothing uncanny about it; it is little more than the subconscious fusion of past experience which concentration brings to bear on a given problem. And as these inspirations in difficult cases are the outgrowth of personal and repeated bedside studies of the patient whose equation also enters into them, he who neglects this portion of his work and merely operates at the behest of another misses much.

No less should the surgeon and his staff shirk the responsibility of the detailed subsequent study of the tissues. Only by familiarising himself with the microscopic appearance of the lesions with which he is to deal and by making his own post-mortem examination of his fatal cases can the operator's experience be properly rounded out. He otherwise becomes a mere tool, misses all the intellectual satisfaction which should pertain to his work, and his technical facility is prone to become developed out of all proportion to the soundness of his judgment.

Matters Pathological.—On the old basis, when one group pronounced on the diagnosis, another group performed the operation, and a third was left to study the histopathology of the lesion, no one was sufficiently concerned thoroughly to study the case as a whole and to follow the victim of the disease to the end, for better or for worse. The surgeon unquestionably is, or should be, the person most vitally interested, the person most likely to take the trouble to assemble and weigh all the facts on which subsequent operations and the patient's ultimate fate may depend, the person, moreover, whom the patient is most likely to keep informed of his progress.

Twenty years ago it was the usual custom for the brain, on its removal at autopsy, to be promptly sectioned according to the time-honoured method of Virchow, which would assuredly bring to light a concealed lesion, but would at the same time permanently destroy the topographical relations of the lesion and its effect upon the brain as a whole, which, to the surgeon, is a matter of paramount interest. I therefore cannot sufficiently express my obligations to my pathological colleagues, first at the Johns Hopkins and in after years at the Brigham Hospital, for their generosity in making it possible for us to conduct our own post-mortem examinations on these cases.

This privilege has put in our hands a rare collection of tissues which are continually worked over; and since the brains have all been "fixed" in situ before their removal, it has been possible for us to study and restudy them at our leisure. There could scarcely be a more informing process than to review the clinical history with such a specimen in hand, and

the gross examination of these tissues in this process has incidentally led to certain observations of interest relating to foraminal herniation, the vascular strangulation of nerves as a source of false localising signs, and so on.

But of even greater value has been the opportunity this collection of specimens gives for the periodical reinvestigation and reclassification of the tumours from a histological point of view as our familiarity with their differing clinical behaviour widens. . . .

So it is the neuro-surgeon's present ambition to concentrate upon one kind of tumour after another in a given situation, rather than to discourse, as we were once accustomed to do, upon brain tumours of all kinds on a broad front; for though they have certain behaviouristic features in common, their dissimilarities rather than their resemblances is the important thing. And there is an ever-increasing number of lesions which we can now, with a fair degree of accuracy, actually visualise and so be the better prepared to approach with the fewest strokes. One may gauge his shots better and be less likely to get into the rough when he is familiar with the course.

This allusion prompts me to mention still another element in all this not to be ignored. The results of a series of operations for a given lesion in a given situation provides a score for the surgeon to play against; and an audience north of the Tweed need not be reminded of the importance of this as an incentive in improving one's game. Only by a carefully checked and posted score, such as is now available both for the acoustic tumours and for the pituitary adenomas, can a tentative "par" for the procedure in question be established. So we are constantly striving to better our record on the double basis of lower mortality percentages and of longer and more livable survival periods in the case of the more rapidly growing tumours. A neuro-surgeon's responsibilities would be insufferable if he did not feel that his knowledge of an intricate subject was constantly growing—that his game was improving.

Certain mid-cerebellar gliomas of childhood which Dr. Bailey and I have recently described as "medulloblastomas," may serve to illustrate my meaning. These tumours, composed of undifferentiated cells, are among the most malignant and, from their situation over the roof of the fourth ventricle, rapidly fatal of all intracranial new growths. Five years ago we would no more have presumed to foretell the presence of one of these lesions than we would have ventured to remove it if it happened to be exposed in the course of an exploration. The average survival period of these cases, if left to run their course, proves to be six months from the time of onset of symptoms; this period may be prolonged on the average for another six months by a suboccipital decompression, with or without fragmentary removal of the tumour, whose activity, meanwhile, may perhaps be checked by radiation.

With this fore-knowledge we have become more and more radical in attacking these lesions, and now have a case living three years after what appears to be a total removal at a second operation; and there are a number of other children who remain free from symptoms well over the six months' period, which encourages us to feel that we are making progress and that the isolated three years' case was not purely accidental. But this matter of score, even for brain tumours of a single kind, becomes increasingly complicated as our tumour list has grown, and to keep abreast of our changing percentages and shifting diagnoses requires the undivided attention of a highly trained secretary, who keeps in close touch with the living patients and their physicians.

Someone has remarked that all this attention being paid to brain tumours has caused them to multiply. There is a modicum of truth in this somewhat Hibernian statement, for tumours unsuspected in times gone by are now uncovered, and it is not an exaggeration to say that more patients with presumed or proven intracranial tumours annually pass through a modern neuro-surgical clinic than were seen in a lifetime by those of a past generation who were interested in the subject. But though we may be more alert than our predecessors to recognise them for reasons that I have mentioned, the tumours with which we have to deal to-day, and which we have thus unwittingly bred, are from a percentage basis quite different from those of 30 years ago.

In a much-quoted paper read by Byrom Bramwell before the Medico-Chirurgical Society of Edinburgh on Feb. 21st, 1894, there is recorded a series of 50 personally observed intracranial tumours which had been disclosed at autopsy. In half of these cases the lesion was secondary to a scrofulous, malignant, or syphilitic process elsewhere in the body, and most of the others were clearly inoperable gliomas. Only 6 of these 50 cases, it is stated, might have been favourable for operation had a localising diagnosis been possible—a sorry outlook indeed for the surgeon of those days.

Nor were the tumour lists subsequently compiled by others from the general literature of the subject any more encouraging. One of the most optimistic of neurologists in his unchanging advocacy of surgical intervention in brain tumours has been M. Allen Starr, of New York, and yet in his compilation (1893) of 300 tumours there were 193 tuberculomas, mostly in children; indeed, tuberculous and luetic lesions comprise 71 per cent. of his assembled cases, whereas they represent less than 4 per cent. of our present-day tumour list.

TUMOUR CLASSIFICATION.

One essential to the dissemination of information is the coincidental adoption of some convenient term which serves to convey a definite meaning, however ill-chosen it may happen to be. In our early efforts to subdivide and tabulate our growing list of tumour cases we came to group them in the following three major categories: (1) the *tumour suspects*; (2) the *unverified tumours*; and (3) those *histologically verified*. The purpose of these subdivisions has been made clear from time to time by one or another of us, and needs at this time only a brief word of explanation.

In their desire to eliminate the possibility of an intracranial growth as the cause of persistent headache, disturbances of vision, convulsions, and so on, many physicians send their patients primarily to the surgical clinic for examination, and this group of cases puts our diagnostic capacity for differentiation severely to the test. They represent the old-time "pseudo-tumour" group, and among them occur examples of cerebral arterio-sclerosis, chronic abscess, aneurysm, cisternal arachnoiditis, subdural hæmatomas, multiple sclerosis, retrobulbar neuritis, mental derangements, and a multitude of other disorders which may be exceedingly difficult to distinguish from tumour and which are listed as "suspects" to be kept track of until the diagnosis comes to be assured in one way or another, should there be any immediate doubt about it. I do not know which is the greater source of humiliation—to operate unnecessarily upon a patient for a pseudo-tumour syndrome and to find merely an œdematous and arterio-sclerotic brain, or to send a patient to an asylum and learn a year or so afterwards that a frontal meningioma has been found at autopsy.

The unverified cases comprise the group of unlocalisable or inaccessible tumours whose existence is betrayed by an unmistakable tumour syndrome and for which temporary palliative measures may have been carried out. The list naturally contains many examples of tumour which will subsequently become verified by secondary operation or by autopsy, but it also includes those cases in which the story has already been closed and no post-mortem examination made. The criterion of verification rests on the microscopic examination of tumour tissue, for even if the lesion has been exposed at operation and its presumable nature recognised, without the actual histological

study of a fragment removed for this purpose it is classed as unverified.[2] . . .

With this preliminary explanation to account for the presence in our records up to Sept. 1st of 513 tumour suspects and of 584 unverified tumours, we may turn to a more detailed consideration of the list of verified tumours grouped in Table I. under their family names.

TABLE I.—*Verified Tumours to Sept. 1st, 1925.*

Gliomas (varia)	492
Pituitary adenomas: Chromophile, 50; chromophobe, 154; mixed, 15	219
Meningiomas (dural endotheliomas)	141
Neurinomas (acoustic)	100
Congenital tumours: Craniopharyngeal pouch cysts, 55; cholesteatomas and dermoids, 8; teratomas, 4 ..	67
Granulomatous tumours: Tuberculomas, 24; syphilomas, 13	37
Metastatic and invasive tumours: Carcinomas, 27; sarcomas, 13; hypernephroma, &c., 4	44
Papillomas (choroid plexus)	7
Blood-vessel tumours (pial): angiomas, 9; angioendotheliomas, 5; peritheliomas, 3	17
Miscellaneous and unclassified	22
Total	1146

What will first of all be noted is the subordination, in this modern list, of the lesions which dominated those of some years ago. It is gratifying to see that the infectious granulomata represent so small a percentage of the cases. Whether this means that these lesions are disappearing as tuberculosis and syphilis are getting under control is not certain, but we may at least assume this is the case. Certain of the other tumours, the papillomas and the meningiomas, have been sufficiently commented upon in their connexion with the cerebro-spinal fluid pathway, as have the hypophysial adenomas and the craniopharyngeal cysts in their relation to the pituitary question. Special reports have been made on the cholesteatomas in the series, and during the past year Dr. Boris Fried has undertaken a special study of the blood-vessel tumours, some of which had gravitated to the group of unclassified tumours; and a few others, through inadequate study, had come to be included among the gliomas. Moreover, the familiar acoustic tumours which I have just cited as an illustration of the importance of concentrating upon neoplasms of a single type in a single situation have perhaps already had sufficient attention paid to them for a short address, particularly since I wish for the remainder of the time to dwell upon the hitherto much neglected growths which outnumber all others—the gliomata.

THE GLIOMAS IN PARTICULAR.

Mere numbers of cases, however, mean little. It is what is done with the few that actually counts; and numbers, even though they add to personal experience, may in reality prove a handicap to the advancement of knowledge by absorbing the time which might otherwise be spent in assuaging curiosity. All neuro-surgeons must certainly have had their curiosity aroused by the undependable behaviour of the gliomas after operation. Why were some apparently so favourable, others so malignant? How could one possibly account for divergent experiences, such as were had in cases like the following?

1. From the cerebellum of a young man of 23 a large tumour was removed in 1910. The diagnosis was "glioma." He was given a *bad* prognosis, but there has been no recurrence and he remains well and free from symptoms now 15 years later.

2. An apparently benign tumour was enucleated from the right hemisphere of a man of middle age. He was given a *good* prognosis. The pathological diagnosis again was "glioma"; and he died of an extensive recurrence within three months.

3. Two years ago a large subcortical tumour mass was removed from the left hemisphere of a woman of 43, who was rendered thereby almost completely hemiplegic and aphasic. It proved to be a "glioma" and the prognosis seemed hopeless. She has recovered, and except for a slight residual of her paralyses considers herself well, and is earning her livelihood as an expert photographer.

4. In a young man with advanced cerebellar symptoms a large "gliomatous cyst" of the right cerebellar hemisphere was merely evacuated. He remained well for 13 years when there was a return of his former symptoms, which led to a secondary operation, and a solid "glioma" was successfully removed from the situation of his former cyst.

5. A woman of 36 was operated upon in 1916 because of persistent Jacksonian seizures originating in the right face. There were no evidences of tumour and the bone flap was replaced. Nine years passed before she again came under observation. Her attacks during this long interval had been moderately well controlled by drugs, but she had begun to notice a progressive weakness of her face and arm and a defect in speech. Re-exploration disclosed an infiltrating "glioma" of the cortex.

These inexplicable experiences come readily to mind and the list might be indefinitely prolonged. Generally speaking, the gliomas have heretofore not only been the *bête-noire* of the surgeon, but a most amorphous subject to the pathologist. Yet they are unquestionably the most interesting of all intracranial tumours from many points of view. In our efforts to classify them from their surgical aspects in years gone by, about the best we could do was to divide them into the gliomatous cysts, the cystic gliomas, and the non-cystic gliomas.

We were aware, of course, that a tendency to cystic degeneration was not only common, but was in a certain respect favourable; and three years ago Dr. Paul Martin made a special end-result study of the gliomatous cysts, which served to show that the expectation of life after operation in these cases was at least as good as that for malignant tumours elsewhere in the body, such as cancer of the breast, for example. This was an encouraging disclosure, but it was not based on an histopathological study of the varieties of glioma which were concerned, nor were we then capable of differentiating them. Moreover, we had hit upon a most baffling type of lesion in our first effort to discourse upon a specific glioma in a given situation—namely, that involving the optic nerves and chiasm.

It is commonly assumed that a glioma, in spite of its degenerative tendencies, is a tumour of such hopeless malignancy that its attempted extirpation, however radical, is inevitably followed by recurrence; and there was some reason to believe that the mere operative meddling with the lesion was likely to stir it into increased activity. Here, then, was a lesion representing the chief bulk of our work, so far as tumour operations were concerned, cut off from the prospect of any surgico-therapeutic aid, apart from the mere temporary palliation of symptoms.

But in the course of a long and largely discouraging experience in dealing with these lesions, there had been a number of most unaccountable happenings. There were mystifying cases in the series like some of those just cited, in which either an extensive tumour, unquestionably glioma, had been found on the surface of the brain and been abandoned as hopeless; or in which a similar tumour was encountered and an obviously incomplete removal undertaken; or ones in which, after a radical extirpation, a pathological report of "glioma certain to recur" was returned; and yet the patients had remained well for years, free from any indications either of progression or return of the growth. From this only one conclusion could be drawn: that gliomas differed markedly in their behaviour under variable influences which were unknown, or else that there were many different kinds of them.

To the unpromising task of disentangling these true tumours of the nervous system, which so greatly preponderate over all other intracranial neoplasms, Dr. Percival Bailey and I set ourselves three years ago, he devoting himself to an investigation of their finer histology, far the most onerous and specialised part of the work, my small portion being to correlate his findings with the clinical histories and surgical experiences.

[2] We were led into making a single exception to this rule in the case of the gliomatous cysts whose yellow, clotting fluid contents are sufficiently characteristic to justify the diagnosis of glioma 99 times in 100. However, had we then known that the benign peritheliomas may undergo a similar cystic degeneration we would probably not have made even this exception, though these latter tumours are exceedingly rare.

To be sure, many different varieties of glioma have been described in the past, and in a sense no two gliomas are precisely alike if one takes into consideration size, manner of growth, situation, gross appearance, and microscopical architecture. But so complex had the matter of histopathological differentiation become that in our own pathological laboratory, as in most others I assume, the simple diagnosis of glioma, with little attempt at characterisation, served to cover the entire group. The only exception to this was in the case of certain distinctive tumours called neuroblastomas, which, as a matter of fact, we have now come to believe are not composed of neuroblasts.

It was necessary, of course, to begin at the beginning, and Dr. Bailey set out to familiarise himself with the normal glial elements and their reaction to the specific stains, it being a natural expectation on our part that could the several varieties of cells known to constitute the supporting substance of the central nervous system be identified in the normal tissues, the cytoplasm of these cells would not lose its specific tinctorial affinities even when they had acquired neoplastic tendencies.

Needless to say, the several glial elements have long been objects of study, even though neuro-histologists, following Golgi, have been more interested in the neural than in the supporting tissues. The difficulty has been to find dyes with a specific affinity for the cytoplasm of the several glial elements which would leave the remainder of the tissue largely unstained; and to the contributions of Ramón y Cajal and his pupils neurology is almost wholly indebted for success in overcoming these difficulties. Others, of course, had been intrigued by the same problem, one of them that brilliant Scot, the late W. Ford Robertson, who 25 years ago described and pictured as "mesoglia" what Cajal calls the third element, and Hortega the oligodendroglia, those small round cells whose scanty cytoplasm is so difficult to stain and which abound near blood-vessels in the long fibre tracts of the central nervous system. But his method is one of the lost arts; at least, the platinum salt he employed, or believed that he employed, even in Bailey's practised hands, gives mediocre results not to be compared with Robertson's original preparations, some of which his son has been kind enough to send us. . . .

During the progress of this work descriptions of some of the more easily identifiable tumours, such as those composed of ependymal cells and of the pineal elements, have been published; and more recently the common mid-cerebellar gliomas of children,[3] composed of undifferentiated cells, have been made the subject of a special report.

Meanwhile the tissues of all the glioma cases in our possession were being recut and reinvestigated by the newer histological methods, and as the series up to January of 1924 proved to contain of the various types a sufficient number—viz., 412—of examples for the purposes of clinical correlation, this was then separately undertaken. Accordingly, from the clinical histories, tabulations were made of the survival period from the onset of symptoms, as well as from the time of operation for the cases up to this date, in correspondence with each of the histopathological subdivisions.

We had no preconception of what the results would show, though, had we been inclined to make prophecies before the figures were spread before us, it might have been anticipated that, other things being equal, the tumours composed of less well-differentiated elements would have the shortest antecedent history with the briefest post-operative survival period, and, conversely, that those composed of the more highly differentiated glial elements would have a longer pre- and post-operative story. We were, however, quite unprepared to find what the following highly condensed table betrays (Table II.), that certain definite tumour types show a longevity far and away beyond what one would expect for a glioma. The table, in other words, serves to show us the kinds of glioma that had seemingly responded so favourably to surgical intervention and to roentgenisation as to have been the source of our previous confusion.

TABLE II.—*Average Survival Period in Months for the Classified Gliomata.*

	Months.		Months.
Medulloepithelioma	8	Astroblastoma	28
Pineoblastoma	12	Ependymoma	32
Spongioblastoma multiforme	12	Spongioblastoma unipolare	46
Medulloblastoma	17	Oligodendroglioma	66 +
Pinealoma	18	Astrocytoma protoplasmaticum	67 +
Ependymoblastoma	19	Astrocytoma fibrillare	86 +
Neuroblastoma	25		

The details of this long study which is in process of publication need not detain us; it may suffice to say here that up to Jan. 1st, 1924, we had 412 so-called verified gliomas with which to deal. From these many eliminations had to be made: the cases "verified" merely on the basis of cystic fluid; those in which tissues had been improperly preserved for our purposes; certain atypical tumours which as yet baffle classification, and so on.

Table III., which lists the total number of verified gliomas in the series brought up to date, gives a sufficiently clear idea of the proportion of the tumours we have succeeded in classifying, and our reason for discarding about a third of them which fail to meet the criteria essential for the purpose.

TABLE III.—*Verified Gliomas to Sept. 1st, 1925.*

Verified by cystic fluid alone	54
Unclassified because differential study impossible	61
Unclassified gliomas of optic chiasm, pons or mid-brain: Optic chiasm, 12; brain stem, 19	31
Unclassified for other reasons: Atypical gliomas, 24; transitional forms, 6	30
Classified: Medulloepithelioma, 2; medulloblastoma, 41; pineoblastoma, 4; pinealoma, 7; ependymoblastoma, 6; ependymoma, 8; spongioblastoma—multiforme 100, unipolare 9; neuroblastoma, 3; astroblastoma 15; astrocytoma—protoplasmaticum 61, fibrillare 49; oligodendroglioma, 11	316
Total	492

Tables of classification are forbidding objects with which to punctuate a lecture. But there are one or two things to which, in passing, I may call attention. It will be seen in the first place that the 316 "classified" gliomas fall into three major groups—41 medulloblastomas, 109 spongioblastomas, and 110 astrocytomas. The medulloblastomas, to which I have already referred, are so malignant that when they once break through the limiting pia they tend to spread in the subarachnoid space in such a fashion as to have led to the term "sarcomatosis of the meninges." The spongioblastomas are scarcely less malignant and represent the so-called gliosarcomas of the older literature which have given their bad name to these tumours as a whole. But with the astrocytomas it is an entirely different story in view of their average survival period exceeding 86 months or over seven years. And when one considers that these 110 astrocytomas, together with the oligodendrogliomas which are equally favourable, represent approximately 40 per cent. of all the gliomas, the neuro-surgeon may feel much heartened in his tasks.

What all this means to us from the important standpoint of prognosis no less than of treatment is incalculable. But there is one thing more of which we are greatly in need—namely, the development of more rapid laboratory methods, if the clinic is to get the full benefit of these classified diagnoses.[4] What the surgeon must cultivate is the ability to tell with some exactitude just what kind of glioma

[3] These are rapidly growing tumours which have been the source of great confusion since they have been variously described as "neuroblastomas," which is distinctly a misnomer, and as "round-celled sarcomas," because of their tendency to "infect" the leptomeninges, which is still worse. Dr. Bailey originally gave to these unmistakable tumours the name *spongioblastoma indifferentiale*, but since Strauss and Globus first used the term *spongioblastoma* for quite another lesion, we have gladly given way to them and have settled upon the term *medulloblastoma* as a suitable designation.

[4] Some tentative short cuts in this direction with promising results have been made by Miss Grace Hiller who has become highly efficient in the specialised technique of staining these tissues.

he has exposed, and in the past it has taken so long to fix, to cut and differentially to stain the tissues that his picture-memory of the gross characteristics of the tumour, in spite of an operative sketch and a careful description, has become so faded before the exact returns come in, as to have lost much of its permanence. Moreover, the patient, as like as not, has in the meantime been discharged, and since the recollection of his particular lesion has become overlain by other impressions, it is difficult to get a dependable composite of one's operative and microscopical pictures.

I may give an illustration of what this all implies by the story of a patient who at the moment has just left the hospital after the removal of a glioma from her left hemisphere. She is the wife of a physician whose experience with brain tumours had led him to expect the worst, and when what I took to be a large spongioblastoma was uncovered, I feared that his apprehensions would be fully realised. The soft, infiltrating tumour, so far as possible, was removed partly by dissection and partly by suction, and a thin block sent to the laboratory was put through by a shortened process in three days. It shows a pure protoplasmic astrocytoma which completely alters the prognosis in the case, to the great relief of all concerned. What we must search for, however, is a still more rapid process than this—one which will make it possible to get the histopathological returns while the operation is still in progress.

These, then, are some of the objectives towards which we are striving. I have from time to time put into writing some generalisations about the special field of neurological surgery. The first of these papers, written just 20 years ago, sounds on reperusal very juvenile in its discussion of the ætiology of choked disc; of palliative operations for purposes of decompression; in its chance remark that possibly someone some day might even venture to operate on a pituitary tumour. By slow processes we have come to broaden our horizon, but we neuro-surgeons do not for a moment forget that we are merely standing on the clustered shoulders of those herein unnamed persons who laboriously worked out for the benefit of our generation the development and finer anatomy of the brain, who discoverd the localisation of its functions, untangled the pathways of its impulses, determined the clinical expression of its lesions, bequeathed to us the instruments of precision we depend upon, laid the foundation-stones of modern cranio-cerebral surgery, and much more besides. We would betray their expectations of us had we not managed to cultivate a few flowering plants in the large field of neurology in which they did the spade-work.

There is, therefore, nothing novel in all this that I have laid before you—nothing, I fear, that Andrew Cameron would have felt was a distinct contribution to practical therapeutics. The complicated act of diagnosing, of localising, and of removing a brain tumour is based on long-established anatomical and physiological principles, and it is time we paid more attention to a detailed study of the lesions themselves. This will require a more intimate knowledge than we possess of their cellular composition, for which purpose aid must be sought from chemistry and biophysics, all of which merely shows how closely interlocked with other sciences any research in clinical medicine has come to be. And, in closing, I would like to quote a statement made by Ranvier in addressing the histologists in regard to his discovery of the clasmatocytes:—

"Everybody knows [he said] that even objects which are quite apparent escape our observation when we are not yet aware of them, whereas we notice them at once after having learned to observe them. That is why it is so difficult to make discoveries, which afterwards seem so simple, one wonders as to the merits of having made them. What more easy to-day than to demonstrate the presence of glycogen in the liver! Yet Claude Bernard, who was undeniably a man of genius, only arrived at this after many years of research and by a series of repeated trials."

DIPHTHERIA IMMUNISATION IN A METROPOLITAN BOROUGH.*

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IN view of the satisfactory results obtained by R. A. O'Brien in the Holborn (Poor-law) schools, arrangements were made in 1922 to render the measure available for the general child population of Holborn. The results obtained are summarised in Tables I., II., and III.

The results of the Schick testing were very much the same as those found in all other urban areas; we have, however, analysed them in connexion with the immunity to diphtheria of various members of the families dealt with. The last column in Table IV. shows the number of exceptions (11·5 per cent.) to the expectation that positive reactions will be manifested only in the younger members.

TABLE IV.

No. of children in family.	No. of families.	Of which the members are—			
		All Schick positive.	All Schick negative.	One or more elders negative, younger positive.	One or more elders positive, younger negative.
2	97	71	6	13	7
2	43	19	4	14	6
4	14	5	—	4	5
5	8	2	—	4	2
6	2	—	—	2	—
7	2	—	—	1	1
—	166	97	10	38	21

In one family of five children, twins (F.) of 2–3 years of age were both positive; of twins of 7–8 years, one (M.) was positive, the other (F.) was negative.

In one family of three children one twin (M.) was negative, the other (F.) was positive, the latter had already been in hospital with diphtheria.

In one family of four, all Schick positive to the first test, two members were found to be Schick positive to the second test. The first of these (F. 4) was immunised some months previously to the second one (M. 1), and was further inoculated, being negative to the second test; the second child is not yet retested.

In another family, twins, one male aged 2 years when tested and one female aged 5 years when tested, were both Schick positive.

Routine Procedure.

The routine of the procedure carried out is as follows. The child is Schick tested at the Council's Maternity and Child Welfare Centre, and if susceptible to diphtheria is brought up by the parent at weekly intervals for the next three weeks for immunisation, and then at the end of another three months (formerly we tried for the period six to eight weeks) for re-Schick testing, when, if it happens to be still positive, it receives further inoculation. A modification of the routine occurs if from the Schick test it is seen that the child is particularly susceptible to protein reactions; in this case the 3 c.cm. of toxin antitoxin mixture are given in four or five doses at weekly intervals.

Although Park and Zingher recommend that Schick testing should only be applied to children over 5 years, it would seem inadvisable to dispense with the test as a routine at the present time in Holborn. It is a great satisfaction to nervous parents to think that there will be no inoculation unless susceptibility is proved.

Retesting is unpopular with parents, and the need for it does not help to increase their confidence in immunisation. Of 295 that have been retested 30

* Opening of discussion at the Annual Congress of the Royal Institute of Public Health, Brighton.

TABLE I.

AGES OF PERSONS SCHICK TESTED, WITH RESULT OF TEST. (HOLBORN MUNICIPAL INFANT WELFARE CENTRE, 1922–23–24.)

Ages.	6 to 12 months		1 to 2 years.			2 to 3 years.		3 to 4 years.			4 to 5 years.			5 to 6 years.			6 to 7 years.		7 to 8 years.		8 to 9 years.		9 to 10 years.		10 to 11 years.		11 to 12 years.		12 to 13 years.		13 to 14 years.		14 to 15 years.		15 and above years.			—
Total for 3 years, 1922–24 ..	40		101			87		84			57			33			30		21		29		40		24		15		12		19		1		49			= 642
Result of Schick Test	Pos.	Neg.	Pos.	Neg.	Not read.	Pos.	Neg.	Pos.	Neg.	Not read.	Pos.	Neg.	Not read.	Pos.	Neg.	Not read.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Not read.	—
Total for 3 years	35	5	94	5	2	84	3	69	14	1	41	14	2	18	13	2	19	11	12	9	18	11	17	23	14	10	6	9	6	6	6	13	1	0	20	26	3	460 Positive. 172 Negative. 10 Not read.

TABLE II.

AGES OF PERSONS IMMUNISED.

Age.	6 to 12 months.	1 to 2 years.	2 to 3 years.	3 to 4 years.	4 to 5 years.	5 to 6 years.	6 to 7 years.	7 to 8 years.	8 to 9 years.	9 to 10 years.	10 to 11 years.	11 to 12 years.	12 to 13 years.	13 to 14 years.	14 to 15 years.	15 and above years.	—
Total for 3 years	30	77	70	53	31	14	23	11	13	14	11	6	4	4	1	6	= 368

TABLE III.

SCHICK TEST AND DIPHTHERIA IMMUNISATION. (THREE YEARS, 1922–23–24, AND 7 MONTHS, UP TO AUGUST 5TH, 1925.)

Total No. tested.		Result of test.						Immunisation of positives.																							
		Negative.		Positive.		Not read.		Found NEGATIVE to re-Schick test after T.A.T.										Found POSITIVE to re-Schick test after 3 c.cm. T.A.T.				Total re-Schick tested.		Given 3 c.cm. T.A.T. Not retested.		Failed to complete three inoculations.		Inoculations not begun.		Inoculations still in progress.	
								1 c.cm.		2 c.cm.		3 c.cm.		4 c.cm.		5 c.cm.		6 c.cm.		Given further inoculation but not yet retested.		No further inoculation given.									
C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.
718	57	180	34	530	20	8	3	9	0	11	1	241	3	5	0	1	1	2	1	10	0	9	1	289	6	144	0	42	5	35	9	20	0
775		214		550		11		9		12		244		5*		2*		3*		10		10		295		144		47		44		20	

* Refers to 10 persons negative to second re-Schick test after second course of inoculations.

C. = Children; A. = Adults.

were found to be still Schick positive after three inoculations. The facts relating to these are given in Table V.

TABLE V.—*Results of 295 re-Schick Tests up to and including August 5th, 1925.*

Re-Schick tested after an interval of years or fraction of years.	Number retested after this interval.	No. found positive.	Age in years and sex of positives when first tested.	Negative to 2nd re-Schick test and total of T.A.T. given in all.
	M. F.			
5/52	10 (6 4)	1	13, F.	Neg.; 4 c.cm.
6/52	3 (1 2)	—	—	—
7/52	6 (4 2)	—	—	—
2/12	19 (9 10)	1	9, M.	Neg.; 6 c.cm.
2½/12	10 (4 6)	—	—	—
3/12	31 (13 18)	2	(*a*) 8, F. (*b*) Ad., F.	Neg.; 4 c.cm.
3½/12	7 (3 4)	—	—	—
4/12	18 (11 7)	1	4, F.	*Neg.; 4 c.cm.
4½/12	2 (0 2)	—	—	—
5/12	7 (2 5)	1	2, F.	Neg.; 6 c.cm.
6/12	21 (10 11)	4	(*a*) 1, M. (*b*) 2, M. (*c*) 3, M. (*d*) 4, F.	— — — —
7/12	12 (5 7)	1	9, F.	Neg.; 6 c.cm.
8/12	8 (3 5)	—	—	—
9/12	7 (3 4)	—	—	—
10/12	9 (3 6)	1	4, F.	†Neg.; 5 c.cm.
11/12	3 (1 2)	—	—	—
1	5 (1 4)	1	9/12, F.	Neg.; 4 c.cm.
1–2	73 (37 36)	14	(*a*) 1, F. (*b*) 2, M. (*c*) 2, M. (*d*) 2, M. (*e*) 2, F. (*f*) 6, M. (*g*) 7, F. (*h*) 8, F. (*i*) 9, M. (*j*) 9, F. (*k*) 11, M. (*l*) 12, F. (*m*) 12, F. Ad., F.	— — — — — Neg.; 4 c.cm. — — — — — — — Neg.; 5 c.cm.
2–3	44 (21 23)	3	(*a*) 2, F. (*b*) 5, F. (*c*) 12, F.	— — —
Total ..	295 (137 158)	30	—	—

* Another child in same family (F.), aged 4 years, was negative.
† Three children in this group were members of one family: 2 negatives (M.), aged 2 years, (F.), aged 6 years; 1 positive (F.), aged 4 years.

In addition, one child re-Schick tested 15 months after 1 c.cm. T.A.T., was found positive, and two children retested after 3 c.cm. were on the information given by the mother considered to be slightly positive. Twenty of those positive on re-Schicking have been further inoculated, and ten of them further tested and found negative. Efforts are being made to continue the inoculation of the remaining ten. Of the 295 persons retested, 137 were males and 158 were females. Among the positive were 10 males and 20 females. Neither age nor interval seems to have any influence on the phenomenon. It would seem conceivable that some batches of toxin antitoxin or toxoid antitoxin might prove to be less efficacious than others. An analysis of the results obtained in Holborn would seem to indicate clearly that one batch of toxin antitoxin was less successful than the others; also that the toxoid antitoxin used was as efficacious as the toxin antitoxin. The toxin antitoxin used were all 3 L+ per c.cm. mixtures, the toxoid antitoxin contained toxoid diluted 1–10 with added antitoxin. (Table VI.)

TABLE VI.—*Batches of Toxin Antitoxin and Toxoid Antitoxin Compared.*

Designation of batch of toxin antitoxin mixture or toxoid antitoxin mixture.		No. of persons inoculated and retested.	No. of these persons found positive on retesting.
Toxin antitoxin mixture.	B. 346	58	2
	B. 475	24	3
	B. 654	26	1
	B. 671	61	15
	B. 671A ..	2	1
	B. 672A ..	30	2
	B. 617	34	1
Toxoid antitoxin mixture.	B. 1017	30	4
	B. 1090	14	1
	B. 1038	8	0
	B. 1018	8	0
Total		295	30

That considerable importance attaches to the retesting is shown by the fact that our one case of diphtheria among those treated occurred in a child who was given the routine three injections. The boy suffered from a severe attack of the disease, but recovered without any complications or sequelæ; his recovery was ascribed certainly by his mother to the inoculations of T.A.T. given after Schick testing.

A second case is said to have occurred in a boy (aged 8) also given the routine three injections. Two years later he was diagnosed (for the third time in his life) as suffering from diphtheria; no swab was taken. On admission to the M.A.B. Hospital he was first found to be swab negative, later swab positive, but was diagnosed as a case of diphtheria. The mother fortunately is still convinced that the boy did not suffer from diphtheria.

Reactions.

Our experience is that the reaction after the injection of the toxin antitoxin and toxoid antitoxin is in practically every case negligible. All we have to record is that in one child considerable swelling of the whole of the arm occurred, but the next day, when at the centre, she was running about and helping the other children eat their cakes; the swelling went down without any further result. Another, a boy of 10 years of age, his mother informed me, suffered with vomiting after each of his three inoculations and spent the next day in bed, but he and his mother stuck to it, and he was subsequently proved to have been satisfactorily immunised. In another child a small, hard, slightly tender nodule developed above the external condyle, but the tenderness only remained for a few days.

What of the Future?

Most of the attendances are the result of repeated efforts of persuasion and encouragement. Prejudice against inoculation is widespread; some of the most stubborn opponents of inoculation admit that if T.A.T. could be given in tabloid form or in spoonfuls they would agree to it. They object, in fact, to the introduction of animal products by means of a hypodermic syringe into the human body, but continued propaganda is sure to produce its results.

The aim of everyone who takes up the work must be to get all the children living in the area immunised as soon after they reach the age of 6 months as possible. In Holborn we have not reached this stage yet; the history of vaccination against small-pox suggests we never shall. But a local health authority is justified in considering that it has done all in its power to prevent loss of life and illness from diphtheria if it offers immunisation.

It might be expected that if the immunisation were carried out among the school population in a large town the parents would come to regard the procedure as more ordinary, and be prepared to allow the younger children to be immunised at infant welfare centres. Apparently it cannot be too often repeated that it is immunisation at a very early age that we want carried out; if it is delayed till school age half the deaths will have occurred. In London during three years, 1919–20–21, 52·5 per cent. of the deaths from diphtheria occurred under 5 years of age. Certainly if the immunisation could be completed at one visit the energy spent in looking up those failing to attend could be used in getting new recruits, and the parents would be spared much trouble.

At the present time efforts are being made to produce a substance which can be used to ascertain the susceptibility of the individual and at the same

time to give some degree of immunity. Obviously experiments on these lines would seem to be concerned with the use of toxin as opposed to a toxin antitoxin mixture, but the methods used up to the present do not produce a toxin of sufficiently uniform strength to enable it to be used for routine immunisation.

Immunisation of Hospital Nurses.

A few words may perhaps be added on the need for the immunisation of hospital nurses. It would seem to be obvious that fever hospital nurses should be protected against diphtheria. I think it difficult to avoid the conclusion that all hospital nurses nursing in children's wards should be immunised. It must be within the experience of many of us that nurses in children's hospitals and subsequently the children themselves are often attacked.

It may be said that a nurse would have to be immunised against diphtheria, scarlet fever, and typhoid and the paratyphoid fevers; this is nothing. I imagine that many of us during the war were immunised against more diseases than these—those going East were protected against small-pox, typhoid and the paratyphoid fevers, cholera, dysentery, and plague. Who can show that we suffered any harm by taking advantage of the progress of science?

THE EFFICACY OF TRYPARSAMIDE IN THE CURE OF AFRICAN SLEEPING SICKNESS.

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EVER since the introduction, nearly 20 years ago, by Thomas, of atoxyl into the field of the therapeutics of trypanosomiasis, hopes have been alternately fostered and then relinquished in the attempt to cure certain human infections by the two human trypanosomes, *T. gambiense* and *T. rhodesiense*.

Complete and lasting success has accompanied the use of a variety of drugs in curing the hæmic and lymphatic infections which precede by intervals, varying from a few months to a few years, the migration of the trypanosomes from the blood-vessels and their entrenchment in the tissues themselves, especially those of the central nervous system. Up till the trial by Pearce (1920) [1] of tryparsamide, elaborated by the workers of the Rockefeller Institute for Medical Research, no valid claim had been advanced for anything but a temporary improvement in the signs and symptoms concomitant with this nervous involvement when really established, although the slighter degrees of it had been apparently arrested.

Before definitely making the claim for tryparsamide as a cure for such cases, based on our experience of the drug for the last four years, it may be well to review in brief the value and limitations of the main drugs and treatments in vogue up to the present.

Spontaneous Cure.

There exists a good deal of doubt as to whether this does really occur. One would expect from the well-recognised factors of varying virulence of the infecting strain of trypanosome and the differing degrees of natural and acquired immunity in the host that a fortuitous combination might result occasionally in a natural cure. The latest evidence in support of this contention comes from Todd (1924),[2] who reports eight cases found infected in 1911 alive and well in 1920, and one of these (no news of others) in 1924. He allows, however, the explanation of extreme chronicity as admissible. In our own series of 650 cases we have not a single instance of survival in good health among the few patients who have escaped, after diagnosis, any treatment whatever, although we are still watching a few cases who are apparently fit after but one or two injections. If some cases of early infection can result in a spontaneous cure, the consensus of opinion is that all cases (with the possible exception of those cited under the next heading) which have been proved to belong to the second class do eventually succumb to their infection.

Treatment by Atoxyl, with or without Tartar Emetic.

There is plenty of evidence to show that really early cases can remain to all intents and purposes cured after a single administration of one of these drugs—i.e., atoxyl, soamin, arsacetin, tartar emetic. Series of cases treated by one to three injections show varying percentages of cures according to dosage and the stage of disease reached, about which there is often no definite information. Even cases, the examination of whose cerebro-spinal fluid had proclaimed them to be in the second stage, have been apparently cured. Blanchard and Laigret (1924) [3] report five such cases alive and well from 6 to 15 years after treatment by atoxyl and arsenobenzols in doses so meagre and few that, in the light of experience with the vast majority of similar cases, such treatment could be disregarded as the primary therapeutic agency.

Opinion is now in favour of repeated injections of 0·015–0·02 g. per kilo body-weight, of atoxyl—i.e., maximum dosage. In a recent epidemic in our own region near Stanleyville about 250 patients have been thus treated in three years, and the percentages of cures and relapses to date are about equal. Treatment was carried out by native boys after diagnosis by the medical man, and consisted in weekly dosage of 1 g. to adults, to a total of 10 to 12 injections. Unfortunately, it was not practicable at the time of diagnosis to determine in all cases by lumbar puncture the exact stage of the disease.

The value of tartar emetic as an adjuvant to this treatment seems not to be very great, for although it is the stand-by of the veterinary surgeon, it is our opinion that its utility in human infections is confined to its use as a substitute for an arsenical should toxic amblyopia develop, or as a temporary trypanosomicidal agent in advanced cases where the onset of severe meningeal reaction is to be feared from immediate adequate dosage with arsenicals. Although tartar emetic alone has been known to cure even a case of infection with *T. rhodesiense*, yet no one would now use it to the exclusion of the arsenicals, and our experience goes to show that if there is any advantage in the combined treatment it is not commensurable with the increased risk and the visits required during the mass treatment of natives during an epidemic.

Treatment by the Arsenobenzols, &c.

The *arsenobenzols* have not been found to give results appreciably better than atoxyl, and their greater cost has prevented trial on a large scale. Now that continental firms are manufacturing "914" of excellent quality and selling it less than one-tenth the price charged by British firms, a further trial of these products might have been advantageous had not there been still better drugs available. The knowledge that they do penetrate the cerebro-spinal fluid suggests that they might have been more efficacious than atoxyl, the penetrability of which is probably less.

Intrathecal Injections of Drugs or Medicated Serum.—This method of attacking the nervous infection was tried by Reichenow in 1914, and retried by Marshall and Vassalo in 1920. Following their advocacy it was tried by many workers, including ourselves, but has now been abandoned as worse than useless.

Bayer "205," or Germanin.—Prolonged sterilisation of the blood and immediate temporary improvement in all patients, which continues in the early cases for many years, has proved the value of this drug. Yet our own series (1924) [4] of 17 cases in the later stages confirms the findings of Van den Branden and Van Hoof (1924) [5] that the value of this drug in nervous infections is less than that of atoxyl. This Dr. F. K. Kleine has admitted to us in correspondence

on the subject, and is evident from the further reports received privately of his series treated in the Congo (1922).[6]

To recapitulate, therefore, there are a variety of drugs which are capable of effecting and maintaining sterilisation of the peripheral circulation for varying periods. Sterilisation is effected most quickly by tartar emetic, less so by atoxyl, and least quickly by Bayer "205," but the reverse order holds good for the maintenance of sterilisation when once effected. This brings out the real value of "Bayer" to the sanitarian concerned with the removal of infectivity. None of these drugs can, however, be relied upon to cure a case which has shown definite nervous involvement.

Cure by Tryparsamide.

Cases treated originally by Pearce and later observed by Van den Branden and Van Hoof, and cases by the last two workers alone at the Laboratory of Leopoldville, afford the very satisfactory figures of

Effects of tryparsamide in sleeping sickness:—*Left:* Case 73, three and a half years ago tryparsamide and 470 cells per c.mm. in the cerebro-spinal fluid. Apparently cured after 24 g. tryparsamide. *Right:* Case 150, 38 months ago tryparsamide and 760 cells per c.mm. in the cerebro-spinal fluid. Apparently cured by 26 g. tryparsamide.

100 per cent. cure of early cases, with unaltered cerebro-spinal fluid. We are able to report a similar success in five such cases, noted for from three and a half months to one year after treatment. Their figures for a series of 35 with altered fluid after an average observation of seven months was 45·7 per cent. still normal, but recent conversation with Dr. Van Hoof shows that the majority of these have remained well up till the present—i.e., an average observation period of nearly three years. These cases were not so far advanced and were more vigorously treated than our own series of 40 (1923 [7] and 1924).[8] Our latest published figure for non-relapse cases in this series was 40·5 per cent., but by the death of one of these (No. 146, Mbalika, the worst case of the whole series) the figure after two and a half to three and a half years falls to 37·8 per cent. It must be remembered, however, that these were all the worst cases one could find, averaging 630 cells per c.mm. in the cerebro-spinal fluid, and were treated by only one course of tryparsamide. The accompanying photograph speaks for itself.

Unfortunately, there are a number of cases which do not react so favourably to tryparsamide, so in claiming that the drug can cure we cannot claim that it is a cure for all cases. This fact is difficult to explain apart from the factors of varying virulence and different degrees of immunity. Personally, I feel that the latter is the most important factor. Pearce believes that the action of tryparsamide, which is only feebly spirillicide and trypanolytic in vitro, is due largely to its stimulation of natural defences.

That this defensive mechanism is largely dependent on the liver is suggested by work by Sei (1923),[9] who reported that extracts of the liver substance of Bayer "205"-treated guinea-pigs contained a greater concentration of therapeutically active agent in the infections of mice with *T. equiperdum* than those of any other tissue, not excluding the blood. It has also been shown that Bayer "205," though but feebly trypanosomicidal in vitro, becomes at once powerfully so when mixed with liver extract. Mignoli (1924)[10] has shown that the natural trypanosomicidal activity of adult human serum varies with the degree to which the liver cells are functioning. Acute diseases of the liver markedly, and chronic ones in less degree, exert very definite influences. The tolerance of arsenobenzols in syphilis varies also in a similar manner.

Clinical evidence is also forthcoming in support of this view, for all workers agree in the importance of removing hookworm from patients, the deleterious effect of the secondary anæmia produced by ankylostomiasis on the liver being well known. In two cases, complicated by an unrecognised bilharzial infection, we noted bad results during treatment; patients overdosed with atoxyl or tryparsamide often complain of abdominal discomfort and distension; a dirty tongue and highly coloured urine suggest liver trouble. They often put on a lot of flabby flesh, much to their annoyance, also suggestive of defective metabolism. Now that clinical tests for hepatic efficiency suitable for the busy clinician are being evolved, there seems to be a fruitful field for research in order to control treatment in the same way as for syphilis.

Suggestions for Treatment.

Our best control of treatment is the examination of the cerebro-spinal fluid for cells and albumin. This latter is simply effected by precipitation of the albumin in 1 or 2 c.cm. by trichloracetic acid 33 per cent., and comparison of the opacity with standardised bacterial emulsions.

It is convenient in treatment to use the common 10 c.cm. syringe, and as the dose of 4 g. should never be exceeded, a 40 per cent. solution is necessary in order that 4 g. may be given without refilling the syringe. This solution is arrived at accurately by the following simple rule, easily followed by native assistants. *Weigh x g. of tryparsamide and add 2x c.cm. distilled water.* For instance, 10 g. is dissolved in 20 c.cm. water and the resulting solution contracts to 25 c.cm. This is not too strong even for intramuscular injection.

The maximum tolerated dose must be arrived at gradually in advanced cases, but must be maintained whenever possible for at least ten injections, which may be either weekly or fortnightly. Adults will almost certainly relapse, if less than 0·05 g. per kilo body-weight is given, and children can stand almost double this amount—i.e., up to 0·1 g. per kilo, and will indeed tend to relapse without it. Thus a child of 14 weighing about 20 kilos can support as much as 2 g. weekly doses. Substitution of tartar emetic (not Bayer "205") for three weeks or a month, if toxic amblyopia develops, will generally allow resumption of former dosage again. In this connexion we may add that we have been using daily injections of sodium thiosulphate 0·45 to 0·9 g. at the first sign of amblyopia, but have no definite evidence worth recording at present as to its value.

A second short course should be given whenever possible six months after the first, the cessation of which is to be guided by progress and the condition of the cerebro-spinal fluid. It must be remembered, however, that the cerebro-spinal fluid will progress towards the normal limits subsequent to the cessation of treatment, if that has been thorough; and an excess of cells, even up to 50 per c.mm. may have entirely disappeared after three months.

If it is desired to combine the treatment with Bayer "205," we consider the most rational method is to alternate the two drugs for the first two or three weeks, giving one of each (not either) per week, and then continuing with tryparsamide. Continuation of Bayer "205" beyond the third injection is of very little use, expensive, and dangerous.

In conclusion, we affirm that tryparsamide can cure African sleeping sickness, although it does not always do so as at present administered, and that it should be the mainstay of our attack on trypanosomiasis. This principle has been adopted by the Belgian Government, which is responsible for the treatment of 50,000 cases annually.

I wish to express my thanks to the Rockefeller Institute for continued supplies of tryparsamide and to Dr. P. H. Manson-Bahr for much kind information and help.

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Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PSYCHIATRY
JOINTLY WITH MEDICAL SECTION OF
BRITISH PSYCHOLOGICAL SOCIETY.

THIS joint meeting was held on Oct. 28th, Dr. R. H. COLE, the President of the Section of Psychiatry, being in the chair.

Sir MAURICE CRAIG opened a discussion on the

EARLY TREATMENT OF MENTAL DISORDERS.

He said that the field of mental disease was much wider than that of physical disease, since the mind was a function of the whole organism and mental disturbance might affect any or all of the organs of the body. There were many schools of thought among those who studied the mind; the science had grown up through mysticism, metaphysics, and materialism to determinism and the "new psychology," and now one, now another aspect had been uppermost. The biological, the psychogenetic, and the physiogenetic schools held widely different theories and had each had their period of supremacy. The great danger in which the science stood was that rivalry between the adherents of different theories would cramp their scope and hinder their advance. Beneath each theory lay a fundamental truth, for which the student should search impartially and not allow his devotion to one aspect to hinder him from thoroughly examining the others.

The Importance of the Emotions.

In surveying broadly the psychological side of mental disorder, he showed that the outstanding factor in every one was emotional disturbance. The early training of a child depended for its efficacy on a harmonious balance of feeling, and might be completely interrupted if this balance were disturbed. This hindrance of mental growth would inevitably reflect itself later on his reasoning side. Keenness of perception and response to stimulus were, perhaps, the measure of mental capacity, but the more richly a man were endowed with these qualities the graver were the effects of any disturbance. The physical as well as the psychic reactions were affected; fatigue interfered with the function of the internal glands by permitting toxins to invade the system, and a vicious circle of cause and effect was formed. He would leave psycho-analysis to its particular exponents, and would content himself with suggesting that many of the patients they claimed to have cured would probably have shown as good or better results under some other treatment. On the subject of early treatment generally, he laid stress on the need for carefully watching children for signs of mental instability. Prophylactic measures should be introduced into schools to nip in the bud the effects of overstrain and other bad influences. He strongly deprecated the habit of explaining away early mental symptoms. Students should be trained to examine mental symptoms together with physical, and to allow them equal weight in diagnosis. Surgeons were particularly liable to neglect the emotional factor in a patient, which might nevertheless make all the difference between success and failure in an operation.

The Toxic Factor.

Passing to the physical aspect of mental disorder, he laid particular stress on the importance of toxins, both endogenous and exogenous. One school of thought even held that all mental trouble was due to the presence of toxins. Idiosyncrasy was a leading factor, and he had seen such harmless food as eggs or mushrooms produce acute delirium. He mentioned the work of several authorities on the effect of endocrine disturbances on the autonomic nervous system, and their part in anxiety and depressive states, and cautioned his hearers against prescribing gland treatment without fully understanding what they were doing, but also against neglecting it altogether.

Sleep.

All authorities, he said, agree in theory on the importance of sleep, but do not always allow it the paramount importance it should have as the only certain means of restoring wastage. It was foolish to fear hypnotics, for the risk of producing addiction was negligible. Some physicians could think only in terms of bromide, overdoses of which he had found damaged the lining of the stomach and sometimes produced confusion, though small doses were valuable. In spite of the feeling of many practitioners against the barbitones, he had found dial and medinal consistently useful. They improved the metabolism and induced a natural habit of sleep. Sodium veronal and luminal were both better than bromide. If sleeplessness were relieved early it left no terrors behind it. He concluded with a plea that the public should be instructed to seek advice as soon as mental symptoms showed themselves, and to enter a mental hospital voluntarily. The general prejudice against mental hospitals could be removed in time with proper instruction and increased accommodation for voluntary patients.

The Case for Psycho-analysis.

Dr. W. BROWN agreed absolutely that there was a physical aspect to every mental disorder, and that the body should be thoroughly examined for septic foci and other causes of toxæmia. Caries, tonsillitis, constipation, and subacute appendicitis were frequent sources of infection. The chief damage was done to internal glands, especially the thyroid. Fatigue was an important factor, which should be met by prescribing rest. On the whole, however, he thought that physicians did not tend to neglect the physical aspect of mental disease, but that they frequently paid too little attention to the psychic aspect of physical disease. An important cause of mental illness was failure to adapt at some period of life, and the physical symptoms produced caused further mental reactions, forming another vicious circle. The physician should learn thoroughly both the physical and mental situation before he prescribed for a case,

and decide the best treatment for each side. Mental disease was broadly divided into functional and organic disorders; it was an axiom that no functional disturbance could occur without a corresponding change in structure, but a disorder was called functional if these changes righted themselves when it was cured by psychological treatment. The change of structure in an organic disease had to be treated physically; it was irreversible.

Hysteria and Hypnosis.

A very good example of the functional disorder where the change in structure was reversible was hysteria, the symptoms of which were extreme suggestibility, restriction of mental functions, and psychic automatism with the appearance of various phobias and obsessions. It was, like many other morbid mental conditions, due to failure of adaptation, and might, if neglected, develop into a psychosis. It was distinct from psychasthenia and the other psychoneuroses, but until it became chronic its symptoms were very indistinct. Its forms and causes differed and required different methods of treatment. He had found that hypnotic treatment gave splendid results in a great many cases of "war neurosis," where the symptoms were somnambulism, fits, and amnesia. The treatment was based on the fundamental psychological principle of re-association, and consisted in reproducing the somnambulism, fits, or key incidents by hypnotic suggestion, and allowing the subject to remember the process. By this means all symptoms were stopped in a very short time, the repressions that caused them were cleared up, and the mental integrity re-established. The test of success was a progressive diminution in the susceptibility of the patient to hypnotism. This method was, of course, nearly always combined with a detailed psycho-analysis.

Psycho-analysis.

Patients of psychasthenic and many other neuroses could not be hypnotised, and the methods he used were general analysis (an armchair interview where the patient talked of his life, assisted by the practitioner) and psycho-analysis, where he reclined in a semi-conscious condition and expressed the ideas and feelings that arose in his passive mind. The aim of the treatment was to give the patient encouragement, general re-education, and rest. It was generally a matter of months, but at the end the patient had acquired an autognosis and a general philosophy of life that went far to prevent him from failing again. He did not insist that distortion of the sexual tendencies was at the root of all psychic trouble. It was responsible for a great many, but the difficulties of several patients arose from the other two instincts, those of self-preservation and the herd.

Treatment of Severe Mental Cases.

He strongly advocated segregation and isolation, with the chief object of giving the patient rest from the social duties which were often the chief cause of his trouble. Mental hospitals offered the advantages of complete rest and the "atmosphere of healing," and the knowledge that many patients recover under the treatment they receive there, but they had the drawbacks of the society of mentally afflicted people and not enough psychological treatment, especially analysis. Many cases, however, required occupation, and he mentioned a clinic in which patients practised congenial handicrafts, games, and riding. The latter was an exceptionally fine stimulus for lethargic patients. Other items of treatment were milk, massage, and mental exercises. Skill in the choice of method was the chief requirement of the psychiatrist, and was not acquired quickly, but only after long and patient experience.

Discussion.

DR. ERNEST JONES questioned Sir Maurice Craig's statement that there was a school of thought which offered a purely psychic explanation of all mental disorder. Just as all good exponents of the physical causes recognised the psychic aspect, so Freud, Prince, and Janet took physiology and biochemistry fully into account. He agreed with Dr. Brown on the extreme importance of early diagnosis and prognosis, which were commonly overlooked by those who relied on palliatives; these, however, did not dislocate the patient's life like definitely wrong measures. A tentative analysis of two or three weeks was extremely useful in enabling a physician to decide whether a particular long and drastic course was likely to produce good results. These treatments were like surgical operations, some were obligatory, while others could be left to the patient's own decision.

DR. W. H. B. STODDART complained of the reluctance of the public to visit practitioners of any treatment with a "psychic" name, although they would trust neurologists. He disliked hypnotism, which he said increased the disorder in neurotics and was impossible to apply to psychotics. Psycho-analysts did not profess to discover sexual perversions but to uncover sexual repressions.

DR. C. H. CALDICOTT said that he had often given 5–10 gr. of bromide regularly for as long as a year without the slightest harmful results.

DR. A. E. CARVER pointed out that a large proportion of the cases described as "mental" showed psychic and physical symptoms inextricably mixed, when it was difficult to decide which should have precedence of treatment. He was strongly against treating minor physical symptoms if he could help it, as the treatment held the patient's attention and aggravated his neurosis.

Sex and Internal Secretion.

DR. H. CORNER described the experiments of Steinach in grafting into animals the glands of the opposite sex. His argument was that every individual has the characteristics of both sexes, and if the "hidden sex" were allowed to grow more quickly than the actual it caused very severe conflicts which led in certain people to mental disorder. This was especially frequent in children of mixed race. It was therefore important that the relative likelihood of uneven development in children of international marriages should be established by experiment and predisposed individuals given gland treatment in their early years to restore the balance between the hormones of both sexes, for when the organs of secretion became differentiated no further modification from outside was possible. He went so far as to suggest prenatal gland treatment.

DR. J. GLOVER spoke of the application of psycho-analysis to psychoses. It had delayed the degenerative process for some years in dementia præcox and had given good results in the manic-depressive form, a biennial depression having given place in one patient to a periodical neurosis. It had no effect on paranoiacs. Its use was not, however, confined to curing, since an experienced analyst could help and improve neurotics and in graver cases prescribe, if not a treatment, at any rate an environment that would give mental patients the best chance of improvement.

DR. G. M. RUDOLF stated that in a batch of general paralytics treated with malaria inoculation, 60 per cent. of those discharged cured or improved had been taken within 18 months after the first symptoms had appeared, but those in whom the disease had run for over 18 months numbered only 7 per cent. of the successes.

DR. M. D. EDER said he was disappointed at hearing practically nothing but the virtues of psycho-analysis; he had hoped for a duel between the respective partisans of psychic and physical treatment. He mentioned the malaria treatment of general paralysis. It was undesirable to treat physical symptoms in hysterical and obsessed patients, as these symptoms would disappear with the restoration of mental health. Psycho-analysis had given good results in psycho-neuroses, but no psychotherapeutic method had been very successful in treating psychotics. Results in the manic-depressive psychosis had been fair in paranoid cases if treated early. It was worth while taking risks in exploring its possibilities in dementia præcox.

The Blood-Sugar of Adolescent Psychotics.

Dr. R. N. CRAIG drew attention to the value in early dementia præcox and exhaustion states of blood-sugar tests as an indication of improvement. The starvation level in exhaustion cases often fell surprisingly low, but in most cases of dementia præcox it remained within normal physiological limits. Præcox cases showed a curve of the low, flat type after the glucose meal. Intensive treatment with thyroid and calcium lactate produced a great improvement in both the mental reactions and the physical condition of patients of both disorders, with a corresponding improvement in the type of their curves. He had produced a state of confusion in two cases of early paranoia by the injection of morphia and hyoscine; this had broken up their systematised delusions, but it was too early yet to say whether the improvement was permanent. He pleaded for wider instruction both of medical students and laymen in the danger signs of nervous and mental disease. In many mental disorders, if the practitioner were summoned in time and fully recognised the symptoms, he could avert what would otherwise be a complete mental breakdown.

The PRESIDENT, in summing up, deprecated any distinction between the physical and the mental factors. The physical illness should be treated on its own merits, whether it were related to the psychic disturbance or not. The mental picture was usually a counterpart of the physical.

Sir MAURICE CRAIG, in his reply, dealt with the points raised by the exponents of psycho-analysis, and dwelt especially on the impossibility of diagnosing a mental case in the early stages, especially by its psychic reactions alone, which were often due to purely toxic causes. It was not even possible to draw a sharp line between psychoneuroses and psychoses, as the milder condition might develop into the graver if not properly treated. We should not be misled by names, but should treat each case on its merits.

Dr. BROWN, replying, claimed for psycho-analysis the great merit that it gives a clearer insight into the mind than any other science, and for this reason no psychiatrist could afford to neglect it. It did not necessarily make sex or the narcissistic tendency the basis of every mental reaction. Hypnotism was certainly disastrous if used unskilfully, but both Janet and himself had found it invaluable. Hypnosis and hysteria were allied mental conditions.

SECTION OF COMPARATIVE MEDICINE

A MEETING of this Section was held on Oct. 28th, Prof. F. T. G. HOBDAY, the President, being in the chair.

The PRESIDENT, before calling upon Dr. Andrews for his paper, delivered a short address, in which he passed in review the work which had already been done in the domain of comparative medicine, and spoke of the large field of investigation still awaiting attack. A remarkable observation which needed light was that one species of animal was immune to a disease which was fatal to another. Why, for example, was glanders so fatal to man and the horse while it was impossible to transmit it to the ox? He maintained that collaboration between the human and the veterinary students of disease had been greatly furthered already by the establishment of this Section of Comparative Medicine, and all over Great Britain this lead had been followed, as evidenced in the united meetings in the provinces between members of the British Medical Association and members of the National Veterinary Association. Such association perceptibly helped forward the mobilisation of the forces which were used in the fight against disease.

Advances in Knowledge on Plant Poisoning.

Dr. W. H. ANDREWS read a paper entitled Some Recent Advances in our Knowledge of Plant Poisoning. He said some forms of poisoning by plants were important by reason of the serious economic losses involved, but of particular interest was the occurrence of strange effects, or effects produced under unusual and unexpected circumstances. In Britain it was very difficult to obtain statistics on this subject; farms and holdings were usually somewhat small, when compared with those in the Colonies, and hence the total losses sustained by any one farmer were not such as to lead him to report them to headquarters or to require an investigation to be made. In addition, in a number of cases the diagnosis was not certain, and some losses attributed to feeding on certain plants were found not be due to that cause. But in South Africa, Australia, and the United States losses were much larger, and a larger proportion of the animals there were fed on natural vegetation than was the case in the United Kingdom. A further reason was that some of the countries were subject to severe droughts, causing serious shortages of ordinary foodstuffs. Long, one of the best authorities, agreed as to the difficulty of estimating losses from this cause, but said they were numerous, and that the aggregate financial loss was very heavy.

The present state of knowledge on poisonous plants Dr. Andrews considered very unsatisfactory; many plants were reputed poisonous which were not poisonous at all, while in a number of cases in which poisoning was attributed to a certain plant, it was founded on assumption, which was not borne out by careful investigation. Prof. A. J. Ewart, writing of the poisonous plants of Victoria, said it was common, when faced with a sudden outbreak of disease among animals, to incriminate some plant which grew in abundance in the vicinity. In County Dublin, Craig and Keir found that a certain disease appeared among animals in the spring and autumn, and many features suggested that the cause might be plant poisoning. There seemed reason to suspect a particular plant, a sorrel. Chemical analysis at first appeared to strengthen the suspicion, as it contained an oxalate in considerable amount. But Craig and Keir went a stage further and fed the sorrel to cattle; one bull consumed 269 lb. of it, and at no time did it, or the other cattle to which it had been given, show any ill-effects. Many plants, however, caused bad effects without having been suspected of doing so. Another source of error lay in the changes which occurred in the actual plant material, and but little was known on this. In many cases in which an apparently harmless material had produced illness, there was reason to believe the plant substance had undergone fermentative changes; some cases of illness had followed feeding with new-mown hay, and it had not yet been worked out whether the symptoms were due to an invasion of the hay by parasitic or saprophytic organisms. The latter might not cause any difference to the naked-eye appearance of the plant. A further possibility was the admixture of the plant material with material from some other source. Lathyrism in the human subject was well recognised in some Eastern countries, but evidence in regard to the amount required and the time necessary for the effects to develop had been conflicting. It had now been shown that the pure lathyrous grain did not contain any alkaloid of a harmful nature, and that to a number of kinds of animal it could be fed without harmful effects following. But cropped lathyrus was usually mixed with many weeds, and some of the latter gave rise to seeds which closely resembled lathyrous grains, such as a very common vetch containing a harmful principle. In a number of botanical species were included plants not quite similar morphologically, and probably differing considerably in chemical composition. Plants might vary in toxicity according to the soil in which they were grown, and differences were also observed in connexion with the season and the stage of development of the plant itself. Many plants were eaten only at a particular season of the year—i.e., when other products were very scarce. Dodd found, in Australia, a particular dermatitis in sheep due to skin sensitisation following exposure to the sun's rays, the rash occurring only on those areas of skin which were unpigmented. There had

not been much work done on the changes in plants due to the presence of fungi in them. Mitchell, in Natal, worked at a particular condition in cattle associated with nervous symptoms, and he found the illness to be due to ingestion of harmless grasses which were mixed with an ergot-like plant. Lathyrism was found to have a definite incubation period, but little was yet known of the active principles responsible for the production of the condition. High fever was sometimes a symptom of plant poisoning; some animals developed a temperature, from this cause, of 107° or even 109° F. Marsh mallow fed to sheep caused bad symptoms in them, but not in horses and cattle. Chronic plant poisoning, he felt sure, was very frequent, and caused serious losses of stock. In some animals a certain time was needed after the feeding to develop symptoms; in one series the incubation period was 80 days. In domestic animals lathyrism showed a latent period whose length was about 54 days. In some cases the poisoning effects became manifest in a sudden explosive way; it might be that this synchronised with the breaking down of the liver cells in which the poison was harboured until then. When confronted with a disease which seemed like broncho-pneumonia, plant poisoning was not likely to be suspected, and even if suspected it might be difficult of proof. It was not easy to pick out the plant suspected, and when the symptoms developed the animal might have been taken some distance away from it. And there was much yet to learn as to why animals ate poisonous plants; hunger, especially in countries where droughts occurred, and the condition of the soil were among the factors. Animals which had been travelling were apt to be too hungry to exercise caution in the selection of their food.

Need for Biological Investigation.

Dr. Andrews said there was a real necessity for biological investigation in the first place—i.e., careful inquiry as to the effects of plants when fed to animals under their natural conditions, and the chemical and pharmacological investigation should only follow where biological inquiry showed the necessity of it. This would prevent much waste of laboratory effort and ability.

As to methods of prevention, the obvious method was to eradicate the offending plant, but that was a counsel of perfection, and in many instances it was economically if not practically impossible. Moreover, the property which made plants dangerous at certain periods was a valuable one at other times. More exact knowledge would enable advice to be given as to what stock must be kept off particular foods at certain periods. A further matter was that of dilution of foods which were poisonous when taken largely, so that no harm resulted. Symptoms in some instances only ensued after long-continued feeding on the offending plant, and in such cases the animals might be turned loose on such pasture only one or two days a week.

Discussion.

Prof. A. J. CLARK said the question of the delayed action of poisonous plants was a very interesting one to him, and instructive parallels were afforded by ordinary pharmacological drugs. One kind of delayed action was that in which a particular drug would only produce a certain amount of action on a tissue for a particular time, and in order to cause a toxic effect it had to be repeated a number of times. Perhaps the best example of that was thyroxin. One dose of this, in any quantity, given to an animal caused no discomfort, but if this quantity were divided and given as several doses poisonous effects would follow. The determining factor in such instances seemed to be the length of time it was acting rather than the size of the dose. Examples were also found in metallic poisons, such as mercury diethyl. A dog was given some of this subcutaneously, and a month later no toxic effects had been observed, but two or three days later the dog became blind, and a week afterwards died of acute mania. Some arsenical poisons caused the same kind of effect, such as atoxyl, which could produce blindness long after it had been taken. He believed that people who worked in munition factories during the war were still dying from the late effects of T.N.T. on the liver cells. Similarly, lead poisoning, by its action on the arteries, might produce a cerebral attack at a remote date. He fully agreed that chemical investigations should be carried out only on those plants which biological inquiries had rendered suspect.

Dr. P. H. MANSON-BAHR said there were a number of mysterious diseases in the tropics which so far had proved inexplicable on a parasitological basis. In India there was a cirrhosis of the liver which was very common, especially among Mohammedans, who did not take alcoholic drinks. Food might supply the explanation, as Dr. Andrews had said that cirrhosis of the liver in cattle could be induced by giving them a particular diet. A similar remark applied to the infantile cirrhosis among suckling infants in India, which occurred especially when children were born with the minimum interval between. In the case of pellagra, the rash appeared on surfaces which were exposed, so that the free areas of skin coincided with the parts of the body covered by the clothing. It seemed to be due, as in the case of the animals mentioned by Dr. Andrews, to the skin in the exposed areas being in a hypersensitive state.

Swine Erysipelas in the Human Subject.

Captain STOWE, in veterinary practice at Redhill, attended to show lesions of swine fever on his thumb and palm which he acquired in carrying out a post-mortem examination on a black pig which died from the disease. During the examination he made a small wound on his thumb, washed his hands in disinfectant at the conclusion, and then applied iodine. On the following evening there was a slight swelling at the wound and some inflammation. He applied lint soaked in 2½ per cent. carbolic and wore a rubber stall, and next morning the lesion had disappeared. Five days later a fresh lesion occurred on another part of the thumb. This continued to spread and fresh sites to occur until painted twice daily with 2 per cent. picric acid. The pig had a very virulent attack of the disease.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

FEVER HOSPITALS MEDICAL SERVICE GROUP.

A MEETING of this group was held at the Society's house in London on Oct. 23rd, Dr. F. H. THOMSON, the President, occupying the chair.

In the absence of Dr. E. H. R. HARRIES (medical superintendent, Birmingham City Hospitals) Dr. W. M. MACFARLANE read his paper on the

SERUM TREATMENT OF SCARLET FEVER.

The speaker said that it was necessary to consider to what extent the results of serum treatment were due to (*a*) the serum itself—i.e., non-specific protein therapy; (*b*) specific antibacterial properties; or (*c*) specific antitoxic properties. It was difficult to estimate and especially to present graphically the results of any one form of treatment in scarlet fever, or to compare the results obtained by one means with those obtained by other means. After analysing some 1500 recent scarlet fever case-sheets and charts he could produce practically identical charts of similar clinical types of case which had had (*a*) no serum at all, the treatment being purely symptomatic; (*b*) normal horse serum; (*c*) diphtheria antitoxin, for the sake of its recent horse serum; (*d*) polyvalent antistreptococcal serum; and (*e*) specific scarlet fever antitoxic serum. Clinicians knew, however, that there were some signs and symptoms far too subtle to be amenable to a charting process. The estimate of any form of treatment except in the most general terms of success, partial success, or failure must

ever remain one for personal judgment, and would, of course, largely be influenced by the type of clinical material available for its trial. In a disease which varied so greatly in severity and in type in different countries—and even in different parts of the same country—at the same time, and in the same country at different times, it was almost futile to attempt statistical comparison between the results obtained by individual workers employing the same therapy until very large numbers were available for analysis. He proposed briefly to discuss serum treatment in scarlet fever from three standpoints.

Non-specific Protein Therapy.—Quite recently Pontano had stated that he "has found that the serum of convalescents from scarlet fever, the serum of normal individuals, and normal horse serum are equally efficacious when injected intravenously. The mechanism of all three serums appears to be identical as far as can be judged from the effects." Claims had been advanced for the superior value of normal horse serum over antitoxin in diphtheria, but not many would be prepared to accept them. In a number of cases of scarlet fever of definite septic type he had given either normal horse serum or diphtheria antitoxin in doses of not less than 50 c.cm. intramuscularly, and had observed definite improvement, as shown by cessation of rhinorrhœa, diminution of adenitis, and progressive fall in temperature. But there were, of course, many cases of septic scarlet fever in which improvement in the septic process had followed purely symptomatic treatment.

Specific Antibacterial Serum Therapy.—Belief in the importance of the part played by streptococci in scarlet fever was, said Dr. Harries, no new thing. Klein had described a *Streptococcus scarlatinæ* in 1886. The earlier sera, in intent at any rate, had been primarily antibacterial and were produced from polyvalent strains of streptococci. The earliest produced by Marmorek (1895) had been a failure and others of similar type had followed it into limbo. Certain of the later productions of polyvalent antistreptococcal serum had, however, been employed with a measure of success in the strictly septic type of case when directed definitely against the septic manifestations. Claude Ker, in 1920, had held that the view that scarlet fever was primarily a streptococcal infection was one which was "being more and more discredited by modern research." Nobody had done more to investigate modern work in scarlet fever than Ker, and he had fully appreciated the significance of the discovery of the Dicks; of the bacterial sera, however, he had, on the whole, a poor opinion. Ker had later been one of the earliest to show that some of these sera presented either no antitoxic titre at all or so little that they would not produce a Schultz-Charlton reaction, the true nature of which—a toxin-antitoxin phenomenon—was first elucidated by Mair. Dr. Harries's own experience of polyvalent antistreptococcal sera had been fairly extensive. Although he was unable to recall any result approaching the "miraculous," yet he was sure that, given early and in sufficient dosage, the polyvalent antistreptococcal sera had frequently, but by no means always, had a favourable and sometimes a strikingly favourable effect upon the septic process. Given when this was well established or at any stage in inadequate dosage—nothing less than 50 c.cm. to 100 c.cm. intramuscularly was of value—they were practically useless. Such sera had no appreciable effect upon the primary manifestations of toxæmia.

Specific Antitoxic Sera.—In a series of 37 cases of scarlet fever Birkhaug had found that intramuscular injections of 15 to 85 c.cm. of serum from convalescent cases of scarlet fever caused a rapid improvement in the general symptoms, but practical difficulties made this method of treatment one of only exceptional application. Dr. Harries's own experience of convalescent sera given therapeutically was limited to two or three cases, and in these the results were inappreciable, owing (almost certainly) to the dose being too small. Zingher and others had employed citrated whole-blood from convalescents. One of the earliest sera which possessed definite antitoxic properties was Moser's (1902). Although still apparently employed on the continent, Moser's serum had fallen into disrepute, not because it was of no value, but because it produced very severe serum sickness. Dochez's was the type of the new sera obtained from horses immunised with the specific hæmolytic streptococci of the Dicks. More recently sera had been produced in America and in this country by immunising horses either with specific hæmolytic streptococci or with the specific toxin—the latter, of course, producing pure antitoxic sera. The Dicks claimed for scarlet fever antitoxic serum that "if given early in the disease there is a definite fading of the rash in 24 hours and improvement in the toxic symptoms. Antitoxin removes the toxic element and the subsequent course depends upon local infection of the nose and throat. After enough antitoxin has been given to relieve the patient of the necessity for combating toxæmia these local complications should receive careful attention."

Dr. Harries said that his experience and that of his colleagues with antitoxic sera had been entirely gained from about the beginning of this year with sera produced in the Wellcome Physiological Research Laboratories. Until a very much larger number of cases had been treated, and, moreover, a larger proportion of cases of great severity, their experiences could not be recorded as anything more definite than impressions. The type of case treated had varied from the moderately severe to the very severe. The first few cases had been treated with 20 c.cm. to 30 c.cm., and this dose was too small for a case sufficiently bad to merit serum treatment at all. Later cases had a minimum dose of 40 c.cm. intramuscularly. The largest total dose so far given was 70 c.cm. in two portions, and probably more marked and rapid improvement would have been seen in some cases had doses of 100 c.cm. or possibly more been given. In some cases serum had been given when toxæmia was well established; in others it had been intentionally withheld until some particular manifestation occurred in order to judge of the effect, if any, of serum treatment directed to that particular point.

Dr. Harries then summarised his tentative conclusions: (1) Reduction of pyrexia. On the whole pyrexia is reduced more rapidly by serum. With reduction in pyrexia tachycardia is also reduced. (2) Blanching of the rash. This is sometimes strikingly seen in 12 hours after injection, even with so little as 20 c.cm. of serum, but such rapid blanching of the rash only occurs in the earliest rashes—that is to say, in rashes less than 24 hours old. When the rash is more than three days old no appreciable blanching effect is produced, owing no doubt to toxin fixation in the tissues. Coincident with the fading of the exanthem has been the effect upon the enanthem. The engorgement of the fauces has rapidly improved and with this early rhinitis has ceased, this doubtless being due to the lessening of the inflammatory conditions of the fauces. The rash, however, is but an unreliable index of toxæmia. The hypertoxic case has, as a rule, a characteristically poor rash, and in estimates of the result of treatment too much attention need not be paid to what happens to the rash; a plentiful distribution of the toxin into the cutaneous tissues probably acts as a safety-valve. (3) Nervous manifestations. The toxin of scarlet fever is apparently an excitant of nervous tissues in contra-distinction to that of diphtheria, which is a depressant. It is upon the nervous manifestations that some of the most striking results following the injection of scarlet antitoxic serum are seen. Patients with severe delirium have in less than 12 hours become perfectly rational, and have been able to express themselves how much better they felt. (4) Septic complications. There is no rapid improvement in established septic conditions following the administration of antitoxic serum. (5) Late complications. Although the series was small and therefore

no statement of any value can be made, there were no late complications in the cases treated with antitoxic sera—i.e., there was no instance of nephritis or carditis. (6) Serum sickness. This occurred in practically every instance and in the case of one batch of serum proved of exceptional severity; indeed, in one or two instances the serum sickness was quite as severe as the original attack of scarlet fever. Concentration of serum will perhaps reduce considerably the incidence of serum sickness.

Dr. Harries stated his belief that good scarlet fever antitoxic sera would do exactly what the Dicks had claimed and no more—that is to say, "remove the toxic element, and by relieving the patient of the necessity for combating toxæmia give him a much better chance to overcome septic manifestations." He discussed the practical difficulties of estimating antitoxic titre arising in the three methods used—namely, blanching of rash, passive immunisation of a Dick positive reactor, and neutralisation of toxin by antitoxin, as shown by performing a Dick test with a mixture upon a known susceptible person and obtaining a negative result. He concluded by referring to the views of R. W. Pryer, who, writing in the October issue of the *American Journal of Public Health*, stresses the importance of the presence or absence of a lytic principle in serum, and states that—

"a serum (even an ordinary diphtheria antitoxin) which contains a high quantity of this principle will give a positive rash fading or Schultz-Charlton reaction. A non-lytic serum will not. *Streptococcus scarlatinæ* toxin is neutralised by a lytic serum. It is probable that the therapeutic value of a convalescent serum is partially due to this principle. . . . The serum of a horse may be strongly lytic at one bleeding and practically devoid of this property at another time. . . . There is the possibility that the serum of a horse, irrespective of its treatment, if obtained during the period of maximum lytic activity, will differ in its effect on scarlet fever from a serum obtained during the periods in which lytic principle is absent. Therefore it would be well, perhaps, to go cautiously in predicting that any methods of serum production will always give a satisfactory serum for use in the treatment of scarlet fever."

Apart from the above statements about lytic principle, said Dr. Harries, Pryer concluded that the mutation of bacteria is of common occurrence, and that scarlet fever is caused by a group of closely related organisms capable of intermutation by means of varying strength of bacteriophage-like principles. If these findings were borne out by subsequent work, they would go far to explain some of the difficulties and discrepancies encountered in work on the Dick toxin, the Schultz-Charlton phenomenon, and curative sera of any type.

Discussion.

The PRESIDENT said that he had treated 71 hospital cases with antiscarlatinal serum injected into the vastus externus. Of these, 31 were treated on the first day of the rash, 33 on the second day, and the remainder later. The average duration of the rash was shorter in the cases treated on the first day than it was in those treated on the second, and in 13 of the 31 first-day cases the rash disappeared within two days, whereas it did so in only 3 of the 33 cases treated on the second day. Of the 71 cases two were severe attacks of septic scarlet fever, and there were two severe initial attacks; the rapid recovery of the latter was remarkable. On the average the temperature fell somewhat more rapidly and became normal somewhat earlier in serum-treated cases, and complications were somewhat more frequent in cases treated on the second day of the rash than in those treated on the first. In the series of 71 cases 63 per cent. suffered from serum rashes and 25 per cent. from joint pains. There were no deaths. In dealing, as at present, with a mild type of scarlet fever, it was difficult, said the President, to estimate the true value of the serum treatment, but the more rapid fading of the rash with serum treatment seemed to be important.

Dr. DOUGLAS MCCLEAN stated that he had Dick tested nurses and children in the wards at the Hospital for Sick Children, Great Ormond-street, and that serum had been given to those who had positive reactions. The dose had been 5 c.cm. at first, but that had not always produced a Dick negative, and the dose had therefore been increased to 10 c.cm. As regards the protection of the children, the results had not been conclusive.

Dr. G. A. BACK (London Fever Hospital) said that he had treated some 30 cases with serum, but it was difficult to estimate the effects of treatment, particularly in view of the mildness of the scarlet fever prevalent.

Dr. E. W. GOODALL (N.W. Hospital, M.A.B.) also remarked that the difficulty was to find any bad cases; amongst the last 300 cases of scarlet fever admitted to his hospital there had not been a single death. In the few cases that he had treated with serum recovery had certainly been more rapid than he would have expected, but those cases could not be looked upon as severe, and in the ordinary way they would have got well without serum treatment. In the cases referred to the dosage had been 30 to 40 c.cm., and sometimes more, and in only one of them had there been an attack of serum sickness, and that had not been worse than what might occur with injection of antidiphtheria serum. Dr. Goodall suggested that it would be better to use the word "refined" instead of "concentrated," as applied to various sera, as he understood that the process aimed at getting rid of the superfluous proteins.

Dr. R. A. O'BRIEN (Director of the Wellcome Physiological Research Laboratories) said that it was necessary to define what sera were, and to find a method of deciding whether a serum was good or bad. There was practically no laboratory test of any value yet discovered, but hope had not been given up. The American method of testing by obtaining passive immunisation of a Dick positive reactor gave results which were very difficult to interpret. It was very difficult to provide serum which was of undoubted high antitoxic value, and it would be unfortunate if improper claims were made for the serum treatment of scarlet fever; unreadiness to draw conclusions before an adequate number of cases had been treated was to be encouraged. There would be no trouble in getting unlimited supplies of serum once it was known to have a definite antitoxic value. The sera of his firm had passed the American standard. The fact that cases of mild scarlet fever treated with serum had suffered more from the serum pains and rash than from the disease itself was an objection to its use in such cases. The passive immunisation test was undoubtedly the best available, but it must be considered whether or not the exposure of people to test the antitoxic value of serum was legitimate. Dr. O'Brien quoted figures supporting the view that complications were less common in cases treated with serum. With regard to Pryer's paper on the lytic method of testing, he withheld his opinion.

Dr. BACK said that a certain amount of delay was entailed by the use of the Schultz-Charlton test, but the majority of patients would receive their curative dose within 24 hours. The shortest period had been four hours.

Dr. A. E. A. PEARSON (Leeds City Hospital) stated that he had used the serum in a small number of cases and had noticed that the temperature had fallen in from 12 to 24 hours in nearly every instance. He had used 10, 20, and 30 c.cm. doses, but expense could not be overlooked. The cost of the American serum he had procured had been 25*s.* per 10 c.cm., so that doses of 80 or 90 c.cm. would involve a heavy expenditure. He urged the need for a standardised antitoxin, and expressed the hope that it would be a practical proposition in time.

The PRESIDENT said that at the N.E. Hospital they had been increasing the dosage, and in the last few cases had given usually 60, 80, 100, and even 120 c.cm., but there was no clear evidence that the large dosage produced any better effect than the small ones.

CARDIFF MEDICAL SOCIETY.

THE first meeting of the session of this Society was held on Oct. 13th, when Dr. R. CAMERON delivered his presidential address on Some Aspects of Gastric Function in Relation to Symptoms. Taking Ryle's classifications of dyspepsias as a basis, he reviewed the functional and organic disorders, emphasised the similarity of subjective symptoms arising from both, and compared the prevailing views on the motor, secretory, and sensory functions with those which have hitherto been taught. He reviewed the work of Carlson on hunger and appetite and pointed out that the factors producing normal sensations may, when exaggerated, lead to those conscious responses which are recognised as subjective symptoms. Dr. Cameron discussed Hurst's important contributions to this subject, which disproved any sensory response of the mucous gastric membrane to varying stimuli, demonstrated reflex hypertonus in response to local and distal irritation, and established this as a cause of delayed pain. The researches of Bennett and Ryle on fractional gastric analysis were dealt with to show that extreme variations of acidity occur without any gastric symptoms being evident and apparently without any disturbance of metabolism. In a series of mental patients without any gastric symptoms which Dr. Cameron had examined, a number showed achlorhydria or hyperchlorhydria. The conclusion drawn from recent work on gastric function in health and disease was that normal sensations result from tonus and tension of the muscle, and that subjective symptoms are most easily explained on a similar basis.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on Oct. 22nd Mr. H. BLACOW YATES read a paper on

Acute Osteomyelitis

based on 38 cases treated in the Sheffield Royal Hospital during the past five years. In 70 per cent. of them there was a history of a recent accident, and the majority presented a focus of staphylococcal infection at the time of admission to hospital. The pathological lesion insisted upon was metaphyseal hæmatoma, the result of trauma, which became infected by staphylococci circulating in the child's blood, though the presence of these staphylococci had produced no previous symptom. In considering the diagnosis remember the rarity of acute articular rheumatism in children under 15 years. Of six cases of acute osteomyelitis having more than one lesion at the time of admission to hospital, two showed infection of three bones and in the remainder two bones were involved. The bones affected were often on opposite sides of the body. Four of these cases recovered, two of which had a positive blood culture. Mr. Yates urged the necessity of opening the medullary cavity when external appearances were normal and discussed the factors contributing to the 18 per cent. mortality.

Mr. R. ST. LEGER BROCKMAN read a paper on

Obstruction of the Small Intestine

without reference to strangulation. He discussed the reasons why kinks were not removed in the intestine, as they are in a garden hose, by the pressure of the contents. The rapidly increasing stimuli caused a state of tetanus or spasm in the musculature of the small intestine, and as this tissue became fatigued another phenomenon of plain muscle appeared, the so-called idio-muscular contraction, which remained localised and showed no tendency to move on. The retraction ring observed in cases of obstructed labour was the best example of this condition. In all cases of obstruction there were two factors at work: the first physical, the second physiological. The increasing content of the bowel and bacterial invasion inaugurated a vicious circle, and often resulted in a partial volvulus of the small intestine. The really important thing to be considered was early diagnosis. Acute spasmodic abdominal pain, vomiting, and shock were the earliest signs and symptoms of acute obstruction. Under these conditions the only safe course to adopt was to assume the presence of obstruction until the opposite was proven. The most valuable means of diagnosis was the stethoscope. The peculiar musical tinkle of air and fluid in wearied intestine was a distinctive sound, never to be forgotten when once recognised. It could be heard at a very early stage through the abdominal wall and could often be elicited by the same manœuvre as that used to obtain a gastric succussion splash. Obstruction of the small gut demanded the surgery of the fingers rather than of the hands, and the operation should be done through as small an incision as possible. To obtain this ideal the most painstaking efforts at locating the site of obstruction were called for. The careful use of the stethoscope, and the position in which the spasm of pain fell off, or what might be called "the march of the pain," were valuable evidence in this search. Surgery in early cases should aim at simply relieving the obstruction; in later cases, where an advanced degree of distension and toxæmia were present, enterostomy should be done. Circumstances alone would decide whether this should be external, or internal into the transverse colon. Mr. Brockman observed that after the actual obstruction had been relieved, the practice of emptying the intestine by means of Moynihan's tube was most useful in some cases of extreme distension. It was essential to remember that the tube should be introduced through healthy intestine below the site of constriction.

In the discussion that followed the papers Prof. A. M. CONNELL, Mr. ERNEST FINCH, Mr. GARRICK WILSON, and Mr. ARCHIBALD CUFF took part.

PATHOLOGICAL SOCIETY OF MANCHESTER.

AT a meeting of this Society held on Oct. 21st, Prof. E. D. TELFORD being in the chair, Dr. C. P. LAPAGE read a paper on

Diathesis in Children.

Diathesis, he said, is not acquired, it is an inherited peculiarity of constitution which cannot be eradicated though it may become quiescent. An acquired condition such as rickets is not diathesis because such a state can be cured and is not a lifelong condition. Diathesis is a state of the human organism in which there is an inherited peculiarity of constitution so that the individual tends to exhibit either certain reactions in response to irritating factors or certain weakness of resistance. It is familial rather than racial or national. Dr. Lapage went on to deal specially with two diatheses, the exudative and the nervous. The exudative diathesis is an important factor in determining the reaction of children to disease and to faulty metabolism. Asthma, eczema, hay fever, and angio-neurotic œdema are the well-known signs, but curd-dyspepsia, milk-intolerance, urticaria, and croup are common in infants of this diathesis and in later childhood. In addition there may be cyclical vomiting, mucous colitis, and other signs very similar to gout in adults. Children of exudative diathesis are of a pale lymphatic type and are restless and irritable. Irritants are concerned in the production of signs of the diathesis; the individual is exudative and may be sensitised. External irritants are: (1) Foreign proteins derived from animals or from plants, food, or bacteria; (2) metabolic faults from animal fats, acids, fruits, wholemeals; (3) climatic factors from bracing seaside places and east winds. Internal irritants are from infections of the respiratory, digestive, or other systems, and also from infected lymphatic glands. In the nervous diathesis the child has a weak spot in the reactions of the nervous system, and as a result of infection or overstrain may show disturbed nervous reactions, tachycardia, irritability, moodiness, various phobias, night terrors, and even fits may occur. Babies with pyloric spasm are of the nervy type, and some babies who find great difficulty in feeding do so because they are nervous. Genuine hysteria may be present in infants.

Reviews and Notices of Books.

THE PATHOLOGY OF TUMOURS.

Second edition. By E. H. KETTLE, M.D., B.S. Lond., Professor of Pathology and Bacteriology, Welsh National School of Medicine, Cardiff. London: H. K. Lewis and Co. 1925. Pp. 285. 12*s*. 6*d*.

THERE are two ways of looking at tumours. They can be regarded as purely adventitious and possibly avoidable formations, as "purposeless" pests, the sole discoverable object of which is to prevent overcrowding of our globe. There is a second and more scientific light in which tumours can be regarded—namely, as variations or anomalies of growth, comparable with other departures from the "normal" standard, to which practically every cell in the body which has not ceased to perform its physiological functions is liable. Viewed in this light the problems of tumour formation are susceptible of study upon general biological lines. A beginning has been made in this direction, but the teaching on the subject lags behind the advances which have been made. Prof. Kettle is one of the few pathologists in this country who are qualified to improve the teaching, and he is to be congratulated upon the way in which he has faced and overcome the difficulties. The second edition of his "Pathology of Tumours" is a model of conciseness and deserves to be ranked with Kaufmann's "Lehrbuch." It has been thoroughly brought up to date, and chapters have been considerably altered, if not rewritten. The student who, after reading it, fails in the higher examinations must not blame this book. The chapter upon the Experimental Study of Cancer is invaluable for everyone who has been unable to keep in touch with the latest developments. If we regret an omission in the book, it is that full references are not given to all the writers quoted in the text.

Possibly because he is writing a text-book intended primarily for students, Prof. Kettle seems to us to under-estimate the variability of tumours, a feature that they share with all living tissues. In the chapter upon the basal-celled carcinomata (in which, by the way, he is not quite just to Krompecher when he suggests that they were so named in the belief that they alone—and not all the cutaneous carcinomata—arise in the basal cells of the epidermis, which alone retain the function of division) he discusses the possible origin of rodent ulcers in hair follicles or sweat glands. But it is a well-established fact that these structures share in the epidermisation of scars. Then why should not a tumour that originates in epidermal cells mimic the minute and really insignificant structural differences that arise during the natural development of the skin and its appendages, regardless of its exact site of origin? Another question which might be asked is this, Are not keratinisation and the production of "colloid" expressions of functional zeal on the part of a tumour, however misguided it be, since they correspond with physiological differentiations? They can hardly be regarded as degenerations. Morphologists may also question the importance the author attaches to the endotheliomata. We agree that the name has been much abused in the past. It could with advantage be discarded and replaced by "angioma," "angiosarcoma," and so forth. Why label a salivary tumour "endo-thelioma" when Prof. Kettle tells us that "it is now pretty well agreed that it is derived from epithelium"? These and similar difficulties would be largely overcome by adopting Albrecht's teaching and frankly admitting that *all* tumours are malformations, and that, although the majority of them are well-defined species, many cannot be separated from hyperplasias and other anomalies of growth.

The book is well got up. The illustrations are good, especially the histological drawings, which we believe are the work of Prof. Kettle's own hand. The present edition is a worthy successor of the first, and will occupy a sure place among books of reference.

UROLOGY.

The Radiological Examination of the Male Urethra. By G. L. S. KOHNSTAM and E. H. P. CAVE. London: Baillière, Tindall and Cox. 1925. Pp. 115. 15*s*.

IN this work the authors give the results of their method of investigating the urethra, which has been used for the last five years, but has not yet found general favour amongst urologists. This has been due partly to the fact that urethroscopy and cystoscopy give such accurate information that other methods are, as a rule, unnecessary, and partly to the difficulty of acquiring a reliable technique and interpreting accurately the urethrograms obtained. This book gives a full description of a satisfactory method of injecting the urethra, and, by supplying a large number of interesting plates, gives the reader an opportunity of learning what facts may be deduced from urethrograms. The opaque fluid employed by the authors is lipiodol, diluted with four volumes of sterile paraffin, and it is injected under a constant pressure recorded by a mercury manometer. Radiograms are then taken under different conditions—between injections, during injections, and with the bladder constricted or relaxed. Full details are given concerning the best positions, both of the patient and of the radiographic apparatus. The second section of the book deals with the interpretation of negatives. The conditions in which the authors consider a radiological examination of the urethra of the greatest use are stricture, prostatic enlargement, and obstruction following prostatectomy. It is interesting to note that as a result of their investigations they have come to the conclusion that the sphincter action after prostatectomy is undertaken not by the compressor urethræ muscle, but by a portion of prostatic urethra that has been left behind.

Although it is unlikely that radiological examinations of the urethra after distension with an opaque fluid will ever take the important place in urology that pyelography has done, it must be admitted after reading this work that the method may be of considerable use in special cases. Thus, in old-standing strictures, in which treatment by excision is under review, a urethrogram will furnish valuable knowledge prior to operation as to the amount of urethra that it will be necessary to excise in order to obtain a satisfactory result. The authors are to be congratulated on their addition to our knowledge of radiography of the urethra and on having presented the results of their investigations in a readable and easily assimilated form. Their book should certainly be found on the shelves of all specialists in genito-urinary troubles.

EMPYEMA.

Some Fundamental Considerations in the Treatment of Empyema Thoracis. By EVARTS A. GRAHAM, A.B., M.D., Member of Empyema Commission, U.S. Army; Professor of Surgery, Washington University School of Medicine. London: Henry Kimpton. 1925. Pp. 110. 10*s*. 6*d*.

Prof. Graham's essay was written in 1920, and the delay before publication has given him a chance to criticise in an addendum articles upon the same subject which have appeared in the meantime.

No attempt has been made to cover the subject of empyema as a whole, and the author founds a therapeutic procedure on general principles. Prof. Graham states that the mortality-rate of streptococcal pneumonia associated with empyema in certain military camps during the influenza pandemic was actually above 70 per cent. By the adoption of the cardinal principles discussed in the essay the mortality was reduced to 4·3 per cent. The essential features of these principles are three: (1) careful avoidance of

an open pneumothorax in the acute stage; (2) the prevention of a chronic empyema by the rapid sterilisation and obliteration of the infected cavity; and (3) careful attention to the nutrition of the patient. It is with the first of these principles that the greater bulk of the author's treatise is concerned. His insistence upon its importance is founded on observations of the experimental production of pneumothorax which prove that previous conceptions of its mechanics are incorrect. It is often thought that the two pleural cavities are kept rigidly exclusive by the mediastinum. But the latter opposes only a very slight resistance to pressure unless it is previously diseased and thickened by long-standing inflammation. An open pneumothorax on one side, therefore, leads to compression of *both* lungs. A lung does not necessarily become collapsed and functionless even if the pleural opening is larger than the diameter of the glottis, and a bilateral open pneumothorax is not inevitably fatal as it would be, of course, if collapse of both lungs were to ensue. The maximum opening into a pleural cavity that can be safely undertaken depends upon the relation between the amount of air entering the lungs and the amount which enters the pleural cavity. Any condition which reduces the "vital capacity" or increases the demand for oxygen will diminish the size of the opening compatible with life.

During the pre-critical stage of pneumonia the amount of air entering the lungs is for several reasons diminished. Later, with a relatively higher vital capacity the thorax may be opened with less danger of respiratory embarrassment, as will also be the case when, through past inflammation, the mediastinum is relatively rigid. These conclusions are in accordance with clinical experience. Repeated aspirations should be substituted for operation in the pre-critical stage. If frank pus develops, operation can be done later, and is, if possible, postponed till the condition of the patient is favourable. Some years ago[1] Dr. A. Abrahams described 116 cases of empyema under his care, in 86 of which aspiration alone led to complete resolution.

The book is a little wearying by a tendency to repetition, but it is very convincing, and the conclusions will be attractive to those physicians and surgeons who have more or less empirically adopted the recommendation for which Prof. Graham supplies theoretical reasons.

AUSTRALIAN TOTEMISM.

A Psycho-analytic Study in Anthropology. By GÉZA RÓHEIM, Ph.D. With an introduction by M. D. EDER. London: George Allen and Unwin. 1925. Pp. 487. 35*s*.

THERE is a bewildering amount of material concerning the totemism of the Australian aborigines, and observers like Spencer and Gillen, who lived among the Arunta tribes of Central Australia, have made detailed records of beliefs and ceremonies which will soon be things of the past; but no theory as to the origin of these complicated systems has been generally accepted. Róheim, following Freud in his work on "Totem and Taboo," studies their psychic structure and claims to trace their evolution from the period of the supposed primitive horde in which the brothers unite to kill the father in order to secure possession of the women of the horde—the primeval Œdipus situation. Granting that this situation exists as an unconscious fantasy that can be revealed by individual psycho-analysis, it still seems a far cry to the postulation of a stage in human development in which it was an actuality. If we grant that, and a good deal more of psycho-analytical theory, we may follow Róheim's ingenious explanations of the extraordinary facts of Australian ethnology. Even then there remains a feeling that his speculation is too facile, as in the picture drawn on p. 389 of the events after the killing of the father, when the horde "would come back to stone the corpse a second time as they had stoned the man when he was alive."

Yet the application of psycho-analytical findings to explain totemism is more than a tour de force; it is a test to which these findings may be legitimately subjected, for if they indicate the workings of the primitive level of the mind then these savage customs should come into agreement with them. Such an identity Róheim claims to find throughout, a good example being the nescience of certain tribes concerning the relation between sexual intercourse and procreation. He shows that the knowledge of this relation manifests itself in beliefs and rites which express infantile sex theories already familiar in psycho-analytical work. This example is one out of many, but not all are so easy to understand. In the deductions the writer draws as to the distribution of the proto-Australians and later immigrants, he is in accord with other authorities. A more limited thesis, however, would probably have a better chance of acceptance by ethnologists. The book is a product of a close study of the literature and is provided with extensive references.

THE CONTROL OF THE BREATH.

An Elementary Manual for Singers and Speakers. By GEORGE DODDS, Mus.B. Dunelm, and JAMES DUNLOP LICKEY, M.D. London: Humphrey Milford, Oxford University Press. 1925. Pp. 65 + xii. 6*s*.

THIS little manual gives, in simple language, a clear and readable description of the structure and mode of action of the respiratory mechanism, and, though much less fully, of the production of tone in the larynx. Little is said of the mechanism by which pitch is varied, and the vexed subject of vocal registers is not mentioned. The last third of the book is devoted to breathing and vocal exercises designed to obtaining control of voice and breath. The authors rightly believe that a knowledge of the mechanisms concerned is useful and not harmful to students of singing and elocution; to such this little book, with its excellent explanatory illustrations, will be helpful.

OLD DERBY PORCELAIN AND ITS ARTISTIC WORKMEN.

By FRANK HURLBUTT. London: T. Werner Laurie, Ltd. 1925. Pp. 312. 18*s*.

THIS book is admirably printed in brown ink and with wide margins. It appears that the format was selected as an attempt to get off "the Kelmscott track," but it does not seem to require any more justification than its comeliness.

Old Derby porcelain has an interesting history which is well set out, one of the most striking points in it being that, according to the author, the Derby factory was the only early English porcelain factory which, except for a few individual pieces, produced original ceramic statuary, giving regular employment to modellers on the premises. A chapter on figure-makers for reproduction is full of detailed information of the sort that the collector of china should have whatever his favourite brand, and the same may be said for the sections dealing with the painters of the figure and flower subjects, the birds, and the fruits on old Derby porcelain. All these chapters should be read in connexion with the latter part of the book, which consists of 59 plates illustrating the beautiful art and craftsmanship of various painters. One need not be a virtuoso in any way to admire these lovely little pictures, and persons who have never bought a pot or a plate in their lives—to say nothing of the more elaborate pieces—must often have felt curiosity about the painters, while to collectors the precise histories will be valuable and entertaining. As it is in the author's knowledge that many of our profession fall into this category, we do them a service in bringing this volume to their attention.

[1] THE LANCET, 1920, ii., 543.

Reports and Analytical Records.

BRUSSON'S GLUTEN BREAD.

(BRUSSON, JEUNE AND CO., 311, GRAY'S INN-ROAD, W.C. 1.)

THIS preparation is sold in the form of rolls, each contained in a separate wrapper, and weighing about 1 oz. The rolls are extremely light, and consequently bulky in appearance. When analysed the following results were obtained:—

Moisture	12·5 per cent.
Ash	0·6 ,,
Fat	1·3 ,,
Protein	36·8 ,,
Starch and dextrin	42·7 ,,
Undetermined matter, fibre, &c.	6·1 ,,
	100·0
Matter soluble in cold water	12·4 per cent.

For purposes of comparison it may be noted that ordinary household bread, with a moisture adjusted to 12·5 per cent., contains 9·7 per cent. of protein and 73 per cent. of starch and dextrin. The Brusson bread is thus much richer in protein and poorer in starch and dextrin.

Formerly an almost complete absence, or at least a very marked reduction, of carbohydrates was considered an essential characteristic of a true "diabetic" food. Whilst a diminution of the carbohydrates in the diet of the diabetic is still deemed necessary, modern practice allows a somewhat more liberal use of carbohydrates than in the past, and under certain conditions some practitioners of recognised authority even permit, for a limited period, foods of high carbohydrate content, such as oatmeal, potatoes, and rice.

CLUBLAND WHITE PORT.

(T. R. PARKINGTON AND CO., LTD., 161, NEW BOND-STREET, W.1.)

When analysed this wine gave the following results:—

Present gravity	1·0161
Alcohol per cent. by volume	21
Total extractives	10·5 per cent.
Consisting of—	
Sugar	9·05 ,,
Total acidity as tartaric acid	0·36 ,,
Volatile acidity as acetic acid	0·03 ,,

These analytical figures are characteristic of a good port. The wine itself is of a "full character," well matured, soft to the palate, and with an agreeable bouquet.

(1) CIBALGIN; (2) AGOMENSIN AND SISTOMENSIN; (3) CORAMINE.

(CLAYTON ANILINE CO., LTD., 68½, UPPER THAMES-ST., E.C. 4.)

(1) Cibalgin presents in combination the analgesic and antipyretic properties of amidopyrin, a small dose of dial having been introduced for its sedative properties. It is, however, primarily intended as a non-narcotic analgesic. The manufacturers state that extensive pharmaceutical and clinical tests have confirmed the value of the compound as rapidly relieving pain without conducing to the formation of habit. The drug is available in the form of tablets and liquid for oral use, while ampoules are supplied for hypodermic injections.

(2) A claim was made recently, which has received support on the continent, that two active principles isolated from bovine corpora lutea may be used for the regulation of menstruation. These active principles or hormones have been termed Agomensin and Sistomensin, the first of which is recommended in cases of delayed menstruation, and the second in conditions accompanied by an over-profuse flow. Agomensin is of value in retarded menstrual flow occurring during an expected period or following a too scanty menstrual flow. Sistomensin appears from clinical results to act as a stabiliser of menstruation in cases of hyper-function, its use, therefore, being indicated in dysmenorrhœa and menorrhagia. With regard to both preparations interesting cases can be quoted from French and German medical literature, and considering the frequently obstinate nature of the symptoms to be relieved, and their prevalence in such varied associations, both drugs might well be given trial under carefully observed medical conditions.

(3) Coramine is the trade name for pyridine-β-carbonic acid diethylamide, which was the subject of an article by Prof. E. Stanton Faust published in THE LANCET of June 27th, 1925. This new synthetic chemical possesses a distinctive camphor-like action, and for many years unsuccessful attempts have been made to produce a water-soluble form of camphor having the typical therapeutic properties associated with the drug. Prof. Faust seems to have demonstrated that the action of Coramine is almost identical with that of camphor, and, indeed, superior in its action on the heart. According to him, in small doses it exhibits an effect similar to that of digitalis, while its stimulating effect extends to both the motor and sensory nervous systems. Coramine should be, therefore, indicated in such conditions as heart asthenia following infectious diseases, the appropriate renal affections, poisoning through narcotics, and asphyxia of the new born, and records of such cases and of cases of bronchial asthma and emphysema are reported where its use has been efficacious. The drug is available in the form of liquid for oral use and in ampoules for parenteral administration.

OPOIDINE.

(J. F. MACFARLAN AND CO., EDINBURGH AND LONDON.)

Towards the end of 1922 we noticed Opoidine favourably as an example of a mixture of the total alkaloids of opium in soluble form. The drug contains about 50 per cent of morphine, the remaining 50 per cent. consisting of other opium alkaloids, concerning the latter of which there is evidence that they are of value in particular directions. Messrs. J. F. Macfarlan and Co. have now introduced a solution of opoidine in combination with scopolamine in ampoules, and they have received evidence of the value of the combination, one practitioner writing in respect of the production of "twilight sleep," stating that he has obtained in a certain number of cases complete amnesia after the first dose of the combination.

CAPROKOL (HEXYL RESORCINOL B.D.H.).

(THE BRITISH DRUG HOUSES, LTD., 16–30, GRAHAM-STREET, CITY-ROAD, N. 1.)

Caprokol is a new urinary antiseptic synthetic remedy for oral administration. It was first brought to the attention of the medical profession at the annual meeting of the American Medical Association last year, when Dr. Veader Leonard, of Johns Hopkins University, gave a description of work carried on at his department of bacteriology over a series of years on the alkyl resorcinols. These are claimed to be more powerfully germicidal than any other known class of substances of equally low toxicity. Clinical reports published on the introduction of hexyl resorcinol and others since received indicate that it possesses valuable properties, in that it is chemically stable, non-toxic, and non-irritating to the urinary tract, and administrable by the mouth. The reports submitted to us go to show that Caprokol exhibits a powerful antiseptic action in high dilution in urine of any reaction, while its elimination in the urine has a local antiseptic influence. A short series of cases of urinary tract infections treated with Caprokol is published under Dr. Leonard's authority, and indicates that many obstinate cases hitherto resistant to treatment had lost their symptoms under use of the drug. Reference to the discovery and properties of hexyl resorcinol have already appeared in THE LANCET, and we comment this week in an annotation upon the results obtained by Dr. R. B. Henline through the employment of this urinary antiseptic.

Iodosal is the correct name of the "supertonic table salt" supplied by Messrs. Francis Newbery and Son and noticed in this column on Oct. 24th.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 7, 1925.

STATUTORY DENTAL BENEFIT.

THOSE who have read the evidence submitted to the Royal Commission on the National Health Insurance Act, during the investigation which is now drawing to a close, must have been struck by the unanimity with which all sorts and conditions of witnesses testified to the desirability of making dental treatment a statutory benefit under an amended Act. Long before the evidence given by the various dental societies was reached, representatives of approved societies were paying generous tribute to the good which had resulted from the partial dental treatment at present given as an additional benefit, paid for to a certain limited degree out of the funds released under the first valuation, and were advocating its conversion into a statutory benefit. Many of the witnesses, indeed, were so convinced of the necessity for this that they recommended a partial pooling of their future surplus funds in order that all insured persons might benefit from the treatment. The members of the Commission, also, by their questions showed that they appreciated the desirability of extending the incidence of dental treatment over at least the whole of the present insured population. The case for making dental treatment a statutory benefit is, in fact, proved to the hilt. There remain, however, certain questions concerning which no unanimity exists—for example, the extent to which it is possible or desirable to make statutory dental benefit complete in the near future, and the manner in which such benefit as may be decided upon is to be administered. To give complete dental treatment will require, annually, a large sum of money, and if an increase in the present contribution be excluded as a possible source of supply, as indeed seems necessary in the financial state of the country, the money required can only be got by some rearrangement of the manner in which the funds obtained from the present contribution are spent. It seems evident that some such rearrangement will be made, but there are certain payments in connexion with medical treatment which have a first claim on any such funds, and it is doubtful whether what will be left when these claims are satisfied, even were it devoted entirely to the payment of the cost of dental treatment, would be sufficient. It may be assumed, therefore, that those schemes of complete dental treatment, not only for insured persons but also for their dependants, which were put forward by the dental and certain other witnesses, must be taken as ideals which cannot be realised as a result of the present inquiry, but towards the ultimate realisation of which it may be possible to take a very definite step. It is questionable whether any responsible dental authority, fully acquainted with all the circumstances of the present position, would desire to see complete dental treatment given as a statutory benefit at the present time, and it would seem from a careful reading of their evidence that the dental witnesses rather contemplate—between the realisation of such an ideal and the present chaotic condition of dental treatment as additional benefit—the prudent intermediate stage of a statutory dental benefit partial in its scope and limited in its time of application, which would afford the knowledge, not available at present, on which an effective and complete scheme of national dental treatment might be based.

There was agreement on the part of all the witnesses before the Commission that, for the present at least, payment of the dentist should be for services actually rendered on an agreed scale of fees, and not by a capitation fee. One reason for this proposed difference from medical benefit is that it is quite impossible at present to estimate with any approach to exactitude the numbers of insured persons who would take advantage of dental treatment were it offered to them on terms similar to those under which medical benefit is given. Comparatively little can be learned from the experience of dental treatment as additional benefit, for there are many circumstances which tend to restrict applications on the part of insured persons for this treatment at the present time. Only members of certain approved societies fortunate enough to have surplus funds and which have adopted dental benefit are eligible. The formalities necessary in claiming the benefit and the fact that only about 25 per cent. of the dentist's fee is paid by the societies have also tended to keep down the number of persons obtaining the benefit. In one society consisting of women of a class likely to appreciate and to desire dental treatment, where every possible effort was made to bring the treatment under the notice of the members and to induce them to accept it, and where special means were available to assist those who had difficulty in finding a proportion of the fee, the claims all over the society did not exceed 12 per cent. of the membership. No dental witness contemplated a demand approaching 12 per cent. of the number of insured persons, and, indeed, were that proportion of claims to be expected, at the average expense per case which has ruled during the last five years under additional benefit, the cost of dental treatment would in the near future be prohibitive. Instead of making payment for any statutory dental benefit a first charge on the available contributions as in the case of medical benefit and making payment of the dentist by a capitation fee, the trend of the evidence given seems to point to the setting aside of a definite sum of an agreed fraction of a penny from the weekly contribution which, with the appropriate Government grant, would form a central fund or pool from which the cost of a certain definite amount of dental benefit for every insured person claiming it would be defrayed. There were various ways suggested whereby the treatment provided could be limited in accordance with the money available, as, for example, by giving free operative treatment, and, in addition, paying a proportion of the cost of any necessary dentures, the patient being left to find the remainder. Assuming a demand of 6 per cent., it was calculated that this amount of treatment would cost 3*s.* 3*d.* per annum per head of the insured population, and would leave the patient to find approximately one-third of the cost. The actuary of the British Dental Association submitted a modification of this scheme which would reduce the cost to a little below 3*s.*, an amount which would be covered by a payment of 0·58*d.* per member out of the weekly contribution with the corresponding State grant added. This approximates to the ½*d.* per week suggested by the representatives of one of the approved societies and indicates a feasible beginning. The professional evidence shows that practically everything in connexion with this matter of cost of dental treatment can be calculated with a fair

degree of accuracy except the possible demand; but that is the crux of the problem, and it can only be satisfactorily solved by experiment on a large scale.

Faced with the problem of how to provide as much of a desired benefit as possible, the Commissioners naturally showed a tendency to explore what appeared to be attractive avenues of economical administration, and the relative merits of "panel" and "clinic" service took up no little time when the dental witnesses attended. Here a number of the dental witnesses showed to some disadvantage. The interests of the dental profession are undoubtedly necessary considerations, but if no more potent arguments against the establishment of whole-time dental clinics can be adduced, it is to be feared that the public interest must prevail. On the other hand, undue emphasis should not be laid on the success of such clinics where they are obviously the most suitable means which can be employed, as, for example, in the dental treatment of elementary school-children or in similar treatment at maternity and child welfare centres. These are special cases which have nothing necessarily in common with the dental treatment of adults as part of an insurance scheme. The feeling of the dental profession is at present opposed to the setting up of whole-time dental clinics. There is no certain knowledge that they would provide more efficient or economical dental treatment for the industrial classes than the 10,000 private practitioners who are able and willing to give it and who have voluntarily organised themselves for the purpose. Clinics cannot be a success unless they are established with the hearty support of the dental profession, and common sense appears to favour a continuance of the panel system in dentistry as in medicine in the immediate future. The methods of control at present applied to medical benefit could be easily duplicated or modified to suit the requirements of dental benefit. On the whole it would seem from a dispassionate review of the evidence given before the Commission that it would be a matter of legitimate surprise and regret should there not emerge in the report of the Commission a strong recommendation for the early institution of a definite measure of dental treatment as a statutory benefit under an amended Act. Without imposing further contributions on the already heavily burdened employer or employee this would soon effect such a reduction of the cost of sickness benefit as to liberate funds for the completion of the scheme.

SUBACUTE INFECTIVE ENDOCARDITIS.

NOT much was heard of subacute infective endocarditis till the latter part of the war and since. It was known as something of a rarity, but its symptoms were not understood and its differentiation from other similar conditions was not clear. Since the war it has become a commonplace and many observers have described and attempted to explain it. This increasing prevalence might be due either to more acute diagnosis or to the fact that very large numbers of men were sifted through more or less efficient filters or to some actual ætiological relation between war conditions and the disease. This last alternative seems to receive most support, and the apparently marked decline in the prevalence of the disorder during the last two years is giving another reason for believing that the war had a large share in causing it. The condition appears to be essentially a chronic bacterial poisoning, and its fatality is due at least as much to this as to the mechanical interference with the circulation produced by the valvular lesion. Its fatality, too, is extraordinarily high; with a few doubtful exceptions every case which has been definitely diagnosed has died within a period between a few months and two or three years. An inevitably fatal issue is extremely rare in parasitic diseases, and its occurrence in subacute infective endocarditis may mean only that diagnosis has not yet advanced beyond the point of being able to recognise the beginning of the end. No form of treatment has proved of any value. Any new information about it is therefore welcome, and there is much of interest in a paper on some of its bacteriological aspects in the current number of the *Journal of Pathology and Bacteriology* by Dr. H. D. WRIGHT, who has worked at it at University College Hospital in conjunction with Sir THOMAS LEWIS and his colleagues in the cardiographic clinic, where the clinical aspects have been thoroughly investigated.

It has puzzled many people that it should be so difficult to isolate organisms from the blood in a condition which is so obviously symptomatically a mild septicæmia, especially as the heart valves are the chief—indeed the only known—focus of the non-hæmolytic streptococci which are always obtained if anything is. The proportion of positive blood cultures has varied widely with different observers. In America it has been 70 per cent. or more, though LIBMAN has noted that they are not so easy to get now as they used to be. In Germany some workers report positive cultures in almost every case, while another group get figures round about 30 per cent., which is similar to the English experience. Dr. WRIGHT addresses himself particularly to the obvious proposition that negative results are due to imperfect technique. He points out that repeated examinations of the same case practically always give the same result, either positive or negative, and that there is no difficulty in isolating streptococci over and over again from a blood in which they occur in very small numbers. He adds to this a variety of experiments on media and methods, and comes definitely to the conclusion that the failure of a reasonably competent worker to isolate the cocci means that they are not there. Turning to the question of how and where the organisms live in the body, he points out that one is here confronted with very serious technical difficulties. Patients dying from a subacute endocarditis may suffer from a terminal invasion by other organisms, and if this does not occur during life a general spread of non-hæmolytic streptococci through the blood occurs so commonly after death that it is impossible with ordinary post-mortem material to get any certain and satisfactory information about the distribution of the causative organisms in the various tissues and organs. The cocci obtained from the blood during life, and to which the patients produce antibodies, are not demonstrably different from those which may be found in the blood post mortem in about a third of random autopsies. And it follows from this that agonal and post-mortem cultures are quite unreliable.

How this obstacle is to be surmounted is not at all clear; till it is we must remain in ignorance of whether the valves are really the main location of the cocci or whether they live somewhere else without producing recognisable anatomical lesions. Histologically, cocci can be readily stained and seen in the valvular lesions in cases where blood cultures have been positive. Where they have been negative cocci are sometimes easily found microscopically, but generally a finely granular material is alone present which might well pass for degenerated organisms or their

dead remains, and is so interpreted by Dr. WRIGHT. His careful observations by no means solve the problem of the disease, but they help considerably to define it. Clinically it appears to make little difference whether a case shows septicæmia or not, though a good deal of fever is more often associated with a positive blood culture than not. The cocci seem to live in the recesses of the fibrosing thrombi on the heart valves whence something or somethings emerge which stimulate the production of specific antibodies and kill the patient. MAIR has produced an apparently analogous state in rabbits with pneumococci, and it is perhaps along experimental lines that the solution is to be expected. Meanwhile, it is satisfactory to note a diminution in the prevalence of a disease in which therapy is helpless.

THE CAMERON PRIZE LECTURES.

THE third of the Cameron Prize Lectures is published in our columns to-day, completing an interesting series dealing with various conditions in relation to brain surgery. The lectures were prefaced on their delivery by a brief statement from the orator, Prof. HARVEY CUSHING, in which he pointed out that everyday symptomatic treatment of patients was, at least in the American medical schools, neglected in the curriculum, the expansion of scientific methods having somewhat crowded the art of medicine to the back of the stage. Prof. CUSHING acknowledged the fascination of modern laboratory procedures for both the teacher and the taught; they lead to diagnosis and indicate treatment along the right lines of progression, but for many of the pathological conditions thus exactly discovered there is as yet no specific remedy, and we shall all agree with him in his suggestion that "more emphasis is laid in our schools on the methods of finding out what is wrong than on what should be done for it when it happens to be found." This was, presumably, the exact frame of mind which Dr. ANDREW ROBERTSON CAMERON, of Richmond, New South Wales, was displaying when he founded the Cameron Prize in 1878 with a bequest of £2000 to the University of Edinburgh for certain specified purposes. We know little beyond what Prof. CUSHING was able to tell us of CAMERON himself. The son of a Tarland farmer, he began his medical studies at Marischal College, Aberdeen, migrating in 1859 to Edinburgh, where for his graduation thesis in 1861 he took the subject of "the corporeal sympathies of certain mental conditions"—a remarkably modern theme in all its relations. He went to Australia to practise his profession and died there some fifteen years later. Prof. CUSHING imagines that, pitch-forked into a new country and unable to fall back upon consultant advice for therapeutic suggestions, he determined that practical therapeutics should be emphasised at Edinburgh so far as an endowed lectureship could bring this about, and the object he had in view was as shrewd a look into the future as was the subject he chose for his graduation thesis. For more than ever the young man who goes out to practise, versed in the lore of modern medical science and perhaps considerably expert in the advanced work of the laboratory, is at a loss when confronted with the sick. The regulations governing the award of the prize were remodelled by the Educational Endowments (Scotland) Commission, with the result that the proceeds of CAMERON'S bequest are now awarded annually to a selected person who in the course of the five years immediately preceding has made any highly important addition to practical therapeutics, and the Senatus of the University is entitled to request, as a condition precedent, that the chosen prizeman should deliver a lecture or course of lectures giving an account of his particular contribution to the practical side of medicine. Prof. CUSHING decided to give an account of the recent developments of cerebral surgery in different directions, and dedicated his lectures to a long list of his collaborators, including those successively appointed at the Johns Hopkins Medical School, Baltimore, and the Arthur Tracey Cabot Fellows since 1912 whose function it is to take charge of the Research Laboratory at Harvard. To this group he added his resident assistants both in Baltimore and Boston, making an important category of men who have contributed greatly to the progress of neurology and surgery, and in associating their names with his lectures he insisted modestly that his own position as a Cameron Prizeman was due to a generous stretching of the conditions in his favour, his activities having been mainly in the direction of the teaching from which the notable contributions of his pupils was derived. But no such apologetic words were necessary for, apart from the value of Prof. CUSHING'S personal work, his centrifugal influence as a teacher has been and is of supreme importance. The name of CUSHING rightly finds a place in the list of Cameron Prizemen, which includes PASTEUR and LISTER, FERRIER and HORSLEY, DAVID BRUCE, MANSON and ROSS, FINSEN, BIER, EHRLICH, FLEXNER, and many other pioneers of medicine.

THE HEALTH OF THE NAVY.

FOR 85 years the Admiralty published an uninterrupted series of annual reports on the health of the Navy. The sequence was concluded in 1922 by the belated issue of a report for 1915, and it was then decided to allow the intervening years 1916–1920 to go by the board and to begin a new series of statistics with the report for 1921. The figures for that year have already been summarised in THE LANCET,[1] and in the table on p. 987 of this issue they are compared with those for 1922, which are now available. The result is interesting. It would, of course, be rash to base much argument on the differences between two consecutive years, but for what they are worth the figures are encouraging. In 1922 deaths and accidents diminished in number; fewer men were invalided out of the service, and the daily sick-list was smaller. The total naval establishment fell from about 116,000 in 1921 to a little more than 100,000 in 1922. About half was allotted to the Home Station and a quarter each to the Atlantic Fleet and the fleets abroad. The death-rate was 4·4 per 1000 in the fleets abroad and 2·7 on the Home Station, and the most fatal single disease was tuberculosis, from which there were 36 deaths.

The incidence of tuberculosis for the Atlantic Fleet was 2·2 per 1000, and it is interesting to note that whilst marines at headquarters had a liability of 1·16 per 1000, the figure for those at sea was 1·57; the sick-berth staff had a liability of 3·18 per 1000, which represented an improvement. In general it is remarkable that the amount of tubercle in a population of young strong men, well clothed, well fed, and well housed, should remain the same in spite of every effort. The naval figures for venereal disease are particularly useful for they distinguish first infections from others. In this report they reflect the general diminution in syphilis without corresponding decrease in gonorrhœa. The fact that the numbers of fresh gonococcal infections per 1000 were respectively 60, 85, and 46 in the Atlantic Fleets, the fleets abroad, and amongst the men on the Home Station, suggests that the vaunted prophylactic methods in use in the Navy are not really effective. In the opinion of the medical officers the victims are apt to be intoxicated and too careless to use them. At any rate, these figures are very high. During 1922, 178 men were discharged on account of gonorrhœa and there seem to be some grounds for the opinion recently expressed by a correspondent in our columns[2] that the civil authorities should take steps to prevent uncured cases returning without restriction to civil life.

[1] THE LANCET, 1924, i., 1227.
[2] THE LANCET, Sept. 26th, p. 673.

Annotations.

"No quid nimis."

THE MEMBERSHIP OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

LAST August we drew attention to the fact that the Royal College of Physicians had lowered the age both for the examination for the Membership and for the conferment of the diploma from 25 years to 23. In the recent October examination 7 candidates out of a total of 53 availed themselves of this relaxation. At a Comitia of the College held on Oct. 29th, which is reported in our columns, a number of further changes were made, and as they are all in the direction of increased facilities for candidates, they will come into force at once. One provision is expressly designed to meet the case of medical men who have been engaged in special branches of practice lying outside ordinary clinical medicine. Such candidates, if over 30 years of age, may now submit work that they have published in any branch of medical science or in general literature, and if the Censors' Board decide that it is of sufficient merit they may excuse the candidate part or the whole of the examination. Another concession permits a referred candidate, in the absence of any special prohibition by the Censors' Board, to submit himself for re-examination without waiting for the expiration of six months, as hitherto has been the case. The revised regulations may be obtained on application to the Registrar at the Royal College of Physicians.

DEFECTIVE ILLUMINATION IN RELATION TO EYESIGHT.

A BULLETIN has been issued by the United States Public Health Service [1] which purports to prove by means of statistics that there is a definite relation between eye disease and the amount of illumination with which the workers are supplied. It was found that the employees at an old post office, the majority of whom were working under an average illumination of 2 to 3-foot candles, had a smaller percentage of normal vision and a greater percentage of certain eye defects than the employees at the new post office, the great majority of whom were working under all or part-time daylight. Hardly anyone would question the bad effect of straining the eyesight with poor illumination in causing fatigue of the eyes. Such fatigue may and does favour the advance of certain diseases of the eye, both superficial and deep, and certain tendencies such as a predisposition to myopia when these are already present. But to maintain that fatigue of the eyes by itself is capable of initiating disease of the eyes on a large scale—the contention of the bulletin to which we have referred—is to maintain something that is inherently improbable and of which no sort of proof is offered. When we examine the details of the statistics on which the argument is based, the fallacy becomes manifest. By far the greater proportion of the "eye diseases and defects" found in the two post offices consisted of errors of refraction and cases of "muscular unbalance." Cases of myopia which might conceivably have been due to defective illumination were hardly as a matter of fact of more frequent occurrence in the badly-lit post office than in the well-lit one. The excess of the cases of defects of the eyes in the former was due, to a small extent to hypermetropia, a condition which may exist without producing any symptoms except a liability of the eyes to be easily fatigued; to conjunctivitis, a condition due to infection, but which is undoubtedly favoured by fatigue of the eyes; but chiefly to muscular unbalance and especially exophoria, which is in no sense a disease and hardly a defect of the eyes, but is a condition which only produces symptoms when the eyes are used for long periods of convergence on near work. The balance excess of cases of defective eyesight in the badly-lit post office was mainly due to "asthenopia," a word which, if it does not mean fatigue of the eyes, means nothing. To sum up, we find no evidence that defective illumination is in itself a cause of permanent injury to the eyesight, except possibly in cases where myopia is either potentially or actually present, and in cases where there is a tendency to inflammation either of the conjunctiva or of the deeper structures of the eye. On the other hand, there is plenty of evidence of what common sense points to—that work for the eyes under defective illumination involves fatigue, and that this may cause permanent injury to "weak" eyes, and in any case is prejudicial to the efficiency of work performed under such conditions. The recommendations as to the lighting of public offices with which the bulletin concludes will be generally endorsed. These recommendations include direction not only for the provision of sufficient illumination but also for the avoidance of glare.

[1] The Hygienic Conditions of Illumination in Certain Post Offices, especially Relating to Visual Defects and Efficiency. Government Printing Office, Washington, D.C. 20 cents.

AN AUSTRALIAN HEALTH BULLETIN.

WE have recently received a copy of the second health bulletin issued by the Department of Public Health, Victoria, Australia. The bulletin is described as a quarterly journal issued under the direction of the Commission of Public Health for the information of councillors, medical officers of health, and health inspectors. The Commission is presided over by the Minister of Public Health, Dr. S. S. Argyle, and includes three other medical men among its eight members. Besides information about the prevalence of infectious diseases, records of new by-laws and reports, the bulletin contains well-written articles on carbon monoxide poisoning, heliotherapy, goitre, tuberculin testing of cattle, hydatids, plague, maternal mortality, infantile paralysis and cancer, and a "wireless talk" on the care of the children's teeth by Dr. O. Behrend, clinical demonstrator of the Australian College of Dentistry. Recent fatalities in bathrooms in Melbourne have drawn attention to the dangers of carbon monoxide poisoning, and some reference is made to its incidence among garage workers. In the article on goitre a description is given of the scheme which has been inaugurated for the prevention of goitre among schoolchildren in the Bairnsdale district of Gippsland. The method adopted is to give the children a dose of 2 gr. of iodide on each of ten consecutive days twice a year. No charge is apparently made for the bulletin and nothing is said as to the means of distribution, but we should imagine from the popular style of its language that this journal is likely to appeal to a much wider circle than the officials for whom it was originally intended. The issue of such authoritative bulletins by a Government health department would appear to be a very useful method of cultivating the health conscience.

HEXYL RESORCINOL: A URINARY ANTISEPTIC.

AN account of the discovery and properties of hexyl resorcinol was given in our columns [1] early this year, and it was then remarked that Veader Leonard's original communication [2] on its merits contained no detailed clinical results. We have now received a paper [3] by Roy B. Henline, of the Department of Urology of the New York Hospital, which describes his results in treating 50 cases of urinary tract infections and offers strong evidence of the value of hexyl resorcinol in practice. The claims that have been made for this drug are considerable. It is said to have all the qualifications necessary to the ideal urinary antiseptic—it is chemically stable, non-toxic, and non-irritant to the urinary tract; it is administered by the mouth and is mainly eliminated by the kidney, and it has an antiseptic action in high

[1] THE LANCET, 1925, i., 448.
[2] Journal of Urology, 1924, xii., 585.
[3] Ibid., 1925, xiv., No. 2.

dilutions of urine of any reaction. Although there may be slight intestinal irritation or diuresis after the first few doses, these symptoms disappear promptly; in order to minimise gastric disturbance the drug is given in 25 per cent. solution in olive oil enclosed in a suitable gelatin capsule, and is administered immediately after meals. An excess dosage is necessary because the bulk of each dose is eliminated as a conjugate in the urine. The conjugated drug has no bactericidal action, and there is wide variation in different individuals in the amount required before the desired effect is obtained. Some will secrete bactericidal urine one hour after a small quantity has been given; on others large doses have no effect for three or four days. During the treatment, before disinfection is complete, the urine will still be a good culture medium; but after it has become sterile it will kill broth cultures of the organism originally responsible. To get good results the urine must be in contact with the infecting agent, and if the infection has penetrated the mucosa prompt disinfection cannot be expected. Treatment should be continued for at least two weeks after the urine has become sterile, and it is said that even in cases in which complete disinfection is not obtained there is often pronounced symptomatic improvement.

All the cases of pyelitis and cystitis in this series reported by Henline were thoroughly investigated before hexyl resorcinol was given. Each was subjected to a rigid physical examination and all possible foci of infection were removed. A complete cystoscopic examination was made in all the cases; cultures from the bladder and each kidney were taken, and the output of urea and phenolsulphonephthalein was estimated. The urine was, of course, carefully examined microscopically and chemically, pyelograms being taken in the sitting and dorsal positions. After all possible complications had been thus eliminated there remained a series of cases of chronic infection in which there was pus and positive bacterial cultures, and it was on this series that the treatment was tried. In the 26 cases of *B. coli* infection studied, the average duration of the disease was 3·67 years. Half of them had some definite urinary complication, such as prostatitis or renal calculus, and nearly all had been under treatment, which had included dilatation of the ureter and kidney, and pelvic lavage with 1 : 1000 neutral acriflavine at intervals of from one to four weeks. The average time of treatment before hexyl resorcinol was started was six months, and after the drug was given the urine of all the patients except two became sterile within 140 days. The average time before this occurred was 63·5 days. In the two failures the infection cleared up in the kidney or the bladder, but not in both, and there was one case of recurrence in a man who had to stop treatment prematurely. Each patient received 0·3 g. of the drug three times daily, and treatment by ureteral dilatations and kidney pelvic lavage with neutral acriflavine, 1 : 1000, at intervals of one to four weeks, was continued in addition. A few of the patients also had operations performed—e.g., nephrectomy—during the period described. In 12 cases of bladder and kidney infections caused by organisms other than *B. coli*, five were caused by staphylococcus, two by *Bacillus lactis aerogenes*, two by *B. proteus*, one by streptococcus, and two by mixed infections. The average duration of the disease from the history was two and a half years, and 75 per cent. had some complication. The average length of treatment by dilatation and lavage before hexyl resorcinol was used was nine months, and after it was administered the urine became sterile in 11 of the 12 cases within 133 days. (In the other case, which was clinically cured, *B. fluorescens* persisted.) On the average it was sterile in 50·7 days; and the average time required for staphylococcal infection was only 18 days. There were no recurrences.

In brief, therefore, in this series of 38 cases 92 per cent. were cured. Of the three failures, one did not return for treatment, one still had a growth of *B. fluorescens*, and one was complicated by a bladder tumour. All these three were clinically cured. In his conclusions Henline lays stress on the necessity for complete examination of the urinary tract before starting treatment, and states that hexyl resorcinol "is apparently superior to all other urinary antiseptics described." The duration of the disease, he says, seems to have no bearing on the length of time needed to effect a cure, provided that the renal parenchyma is undamaged. By thorough disinfection of the urinary tract hexyl resorcinol is an aid in preventing the recurrence of calculi, and in post-operative urological cases it is useful in healing wounds infected by streptococci. The remainder of Henline's series of over 50 cases were instances of gonococcal infection in the male. The number was not large, but no beneficial effects were recorded. We understand that hexyl resorcinol is at present being manufactured in this country by the British Drug Houses, Ltd.

SAFETY IN RADIOLOGICAL WORK.

NOT the least important subject discussed at the recent International Congress of Radiology held in London was the protection of workers exposed to radiation. The Physics Section drew attention to need for uniformity in protective methods throughout the world, and we learn from the organising committee of the Congress that the subject is likely to be discussed again at the next international meeting to be held in Stockholm next year. The British Institute of Radiology does well through its committee to insist on the importance of this matter. Some general basis of protective methods, which can easily be put into practice, is a necessity, not only in X ray and radium work, but also in heliotherapy. The increasing use of these methods makes it the more necessary that careful attention shall be given to securing healthy conditions for the personnel. When high-power carbon arc lamps are installed the ventilation of the premises is of the greatest importance, and the nursing staff must be protected from the glare of the lamps by efficient goggles, otherwise persistent headache and lassitude will soon make their appearance. An X ray and radium protection committee was formed in this country in 1921, and they have issued a number of valuable reports. No doubt the committee will in future include in their reports every form of radiation which is used therapeutically, and we look to them to keep the medical public acquainted with such methods as may be considered advisable. In no way does this diminish the necessity for international coöperation, but it is to be hoped that this country will continue to take a foremost place in devising methods of safety for those engaged in what, in default of such methods, is a dangerous occupation.

CYTOLOGY OF CANCER.

IN a recent issue of THE LANCET [1] attention was drawn to papers by Dr. R. J. Ludford and by Prof. A. Maximow dealing with cellular changes in test-tube cultures of normal tissues. These changes were so similar to those seen in cancer cells that they led Prof. Maximow to suggest the interesting possibility of having induced a cancerous transformation of normal mammary cells by his special conditions of cultivation. We then pointed out that the morphological changes described did not necessarily represent the essential character of malignancy; they might be merely the result of abnormal conditions of growth and nutrition. This criticism finds support in another paper on the General and Experimental Cytology of Cancer by Dr. Ludford,[2] which has just appeared. In this paper the author has reviewed and summarised the vast literature on the cytology of cancer and has supplemented it by original observations. Nothing is more tedious to read than verbal descriptions of morphological appearances. Dr. Ludford has avoided

[1] THE LANCET, Oct. 24th, p. 876.

[2] R. J. Ludford: Journal of the Royal Microscopical Society September, 1925, p. 249.

this difficulty by summarising observations and theories in the form of diagrams, either original or else constructed from the authors' figures drawn in a more diagrammatic manner than the originals. "This pictographic method has been adopted," as he states, "as being more precise and more compact than it is possible for merely verbal descriptions to be. It enables the reader to survey a wide field more easily and more rapidly than is possible in any other way." The paper of 40 pages, of which almost every second page is an illustration, has the charm of a picture-book and succeeds in condensing a vast amount of information in the clearest possible manner. Dr. Ludford's general conclusion is that present microscopic methods do not enable us to distinguish between a normal and a cancerous cell. The cancer virus of Gye and Barnard is too small to be seen with the microscope in common use at the present time. The wide range of pathological variations described in the past "are the morphological expression of the reaction of the cells to the peculiar conditions of tumour growth. There is no pathological state restricted to cancer cells alone, so that there exists for the cancer cell no precise morphological diagnostic character of any kind." The paper deserves to be read by every pathologist for its contents and to be imitated in its method of presentation.

POISONS IN THE HOME.

THE letter from Mr. Frank Briant, M.P., which recently appeared in the daily press, draws attention to a danger which is well known, but of which the magnitude is perhaps seldom realised. "On a shelf in practically every home," Mr. Briant writes, "lies a bottle the contents of which are capable of causing a violent and terrible death to the whole family." This bottle holding spirits of salt or some other domestic poison must, according to law, be a distinctive one; but it is fairly clear, Mr. Briant thinks, that in many cases the law is not adhered to. Harmless substitutes might be found for domestic uses—this is a matter he leaves to chemists. Meanwhile, the public should insist that these poisons be sold only to those who are capable of appreciating their dangers and should take infinite care over the disposal of the bottle on the shelf.

The general suggestions contained in Mr. Briant's letter seem eminently sound; the difficulty lies in their practical application. A tightening of the regulations with regard to the sale of poisons, ensuring that they should only be sold in fluted bottles, may accomplish something, but much would still depend upon the public themselves, and the real crux of the matter lies undoubtedly in the better education of the public in these matters. It is no use rigidly insisting on poisons being sold only in an easily recognisable bottle if the latter is then subsequently used for storing some harmless domestic fluid with the result that familiarity breeds contempt. It is only a public educated and trained to reasonable care in these matters that can be relied upon to be immune from poison casualties. In any case there is a good deal to be said for the suggestion that harmless substitutes might be found for domestic use. Poisons in the home are used chiefly for three purposes—namely, for cleaning, for disinfecting, and for exterminating vermin. Most of the accidents arise from poisons used in the first two categories. The use of crude hydrochloric acid, popularly known as "spirits of salt," naturally finds much favour for removing calcareous deposits, especially in districts with hard water-supply. Vinegar may be used to some extent as a substitute, but in amounts necessary to produce the same effect it is, of course, more costly, and a really satisfactory substitute for "spirits of salt" would be welcomed. Accidents arising from the use of disinfectants and antiseptics are usually due to some preparation of phenol or cresylic acid. Many less dangerous substitutes for these are to be found, foremost amongst them the majority of essential oils, many of which possess extremely high carbolic acid coefficients with relatively small toxicity to human beings. For example, the coefficient of oil of origanum is 26, thyme 15, clove 9, rosemary 6, lavender 5, and sandal-wood 1½. The high coefficient of oils such as origanum and thyme is readily understood in view of their high content of such powerful antiseptics as thymol and carvacrol, but the rather high coefficient of oils such as lavender and sandal-wood is surprising. These essential oils are, of course, more expensive than disinfectants derived from crude carbolic acid, but the cost of saponaceous solutions of the cheaper essential oils should not be prohibitive. Other comparatively innocuous antiseptics are to be found amongst oxidising agents such as hydrogen peroxide, sodium hypochlorite, and the organic chloramine derivatives. A number of proprietary antiseptics of low toxicity based on these substances are available at a reasonable cost. Accidents arising from the use of vermin killers are rare, for exterminators of the specific virus type are not poisonous to human beings.

THE CINEMA IN NEUROLOGY.

THE slow-motion cinematograph has gone far to prove that the sluggishness of man's reflexes cuts him off from a world where time moves leisurely and everything is more beautiful and more graceful than we recognise. Bacteriology has abolished the conception of dirt, and it may be that the cinema, *mirabile dictu*, will convince us that ugliness is a myth. In the meantime its possible applications to medicine have escaped the notice they deserve, and it is pleasant to note the work on bradykinetic analysis by the cinematograph which has been carried on during the past few years by Dr. Frederick Tilney and Dr. S. Philip Goodhart, professor of clinical neurology at Columbia University, New York. Working at the Montefiore Hospital and at the University they have prepared a series of films showing movements in nervous diseases, and on Oct. 23rd Dr. Goodhart gave a demonstration of his work at the Paris centre of the American University Union before a distinguished audience of neurologists. The films are the only ones at present in existence dealing (from the technical aspect) with nervous disease, and they include records and analyses of muscular movements in dystonia musculorum, encephalitis lethargica, chorea, progressive muscular dystrophy, and multiple sclerosis. There are records at the usual speed and at slow motion, and they have proved of value not only for undergraduate teaching, but for case records, verification of diagnosis, and follow-up work. The six reels shown illustrated the special uses of the method—namely, determination of the character of muscular movements; analysis of reflex movements; revelation of movements inappreciable by the naked eye; differentiation between functional or psychic and organic states; record for comparison with necropsy findings, and prognostic indications. It is found that a long, slow, progressive muscular wave appears in spasmodic movements occurring in encephalitis and seemingly in other conditions referable to lesions of the basal ganglia (thalamic and striate regions). Whether this peculiar movement is diagnostic of basal (striate) lesions is not yet certain, but if so, slow-motion analysis should be of special diagnostic value. Seemingly purposeless movements prove, on analysis, really of associative and symbolic character, showing emotive effects and a segmental nature. They express a psychic state, representing approach and retreat, entreaty and a negative feeling of shame. Slow-motion analysis shows the relation of symbolic and emotive movements to motor effects and reveals possible connexions between the corresponding sensory, or thalamic, and motor, or striate, lesions. Hysteria may thus have basal ganglionic relations. In all such conditions there is a suggestion of the effect of constant nervous stimuli in creating minute lesions, too fine for demonstration by present methods, which are at the basis of conditions now considered purely psychic or functional. In recording reflex movements it is found that in some states the patellar

reflex, and possibly other reflexes, have a pendulum-like character, the limb continuing to oscillate for a number of times after the hammer blow. There is also a remarkable prolongation of the interval elapsing between the hammer blow and the first reflex response. Movements inappreciable to the naked eye exist in dystonia musculorum, and this fact is useful in diagnosis and prognosis since dystonia musculorum is incurable. Certain cases thought to be hysteria or dementia præcox have been found to be really cases of dystonia. Many other movements are well shown by the films—for instance, the champing and chewing movements often present in postencephalitic states, and a very interesting case is shown, in which, following grave fright produced by a violent thunderstorm, the patient presented movements initially of escape, or fleeing, and considered of psychic character. Slow-motion analysis showed the progressive muscular wave, so strongly suggestive of striate lesion, referred to above.

TYPHOID CARRIERS IN GLASGOW.

DURING Dr. A. K. Chalmers's last year of office as medical officer of health for Glasgow an investigation was carried out among the contacts of enteric fever patients to ascertain to what extent the source of infection might be attributed to carriers. The period covered was from Sept. 1st, 1922, to Sept. 30th, 1923. The investigation revealed that among 374 home-contacts of 102 patients only in eight instances was there bacteriological evidence of a similar infection. Further inquiries showed that four of these contacts were probably "missed" cases of a mild nature. Of the remaining four, three (all women) continue to be definite carriers and remain under supervision, two of them in the city and one in another district. None of them, however, take any part in the preparation of food. The fourth carrier, an ex-Service man, with a history of dyspepsia dating from military service, had large numbers of typhoid bacilli in his excreta. He was treated with autogenous vaccine and his fæces were found to be negative on two occasions a year later, when the dyspeptic symptoms had entirely disappeared. It is suggested that this investigation shows that the carrier is only responsible for the incidence of enteric infections to a very small extent. Three female carriers were admitted to Belvidere Hospital with a view to studying the best methods of curing the condition. No results were obtained by dietetic, antiseptic, and vaccine treatment, and only after excision of the gall-bladder were continuous negative findings obtained in two of the cases. The third case was detained for a much longer period, and finally left hospital of her own accord for her home in the north of Scotland. An example is given of a family infected by a carrier. On Nov. 17th, 1923, a child of 6 was notified as having enteric fever. He was one of a family of Russian Jews, numbering 11 persons, and including a grandmother aged 60. Ultimately the grandmother was found to be a carrier, as the result of a notification of a second child in June, 1924. In July two more children, aged 11 and 15, sickened, and in August the other inmates of the house were inoculated. No further cases have occurred. The family remain under supervision, and the grandmother is still a carrier.

HOSPITALS AND HEALTH CENTRES.

A LEADING article under this heading prefaces a special issue [1] of the *Architects' Journal* on Oct. 28th. The special issue is itself a sequel to a similar issue published by that journal in June of this year, and the two fully illustrated supplements comprise a valuable story of hospital construction. Both are well and profusely illustrated, and the text which accompanies them explains clearly such pertinent matters as the conversion of country mansions into special institutions and the heating, ventilation, cleansing, and flooring of hospitals. A section on modern American hospitals gives a series of typical ground plans and diagrams of new fittings; there are several valuable suggestive notes and plans on the construction of nurses' homes. The leading article rightly suggests that while great central hospitals and special institutions, whose plans and elevations make up a large portion of the special issues, must be built with all the knowledge and skill which architects can provide to render them practical as well as comely, the great need of the immediate future may be the erection of smaller hospitals, sometimes as annexes to central institutions situated where further development is impossible, sometimes to meet the needs of growing communities, and sometimes to provide a focus of institutional treatment in rural areas. There is no doubt that this view of what will be required in the future is a sound one. The present shortage of hospital beds in the country has been estimated by the Voluntary Hospitals Commission at 10,000. The hospitals implied require building and will have to be built, not in order to realise either the dream of an architect or the ambition of a community, but for the needs of a public which will have to find a large share of the money.

[1] Modern Hospitals: Second Special Issue. The Architects' Journal, 9, Queen Anne's-gate, Westminster. Vol. lxii., No. 1608. 1s.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. C. R. Rickard is placed on the Retd. List with the rank of Surg.-Capt.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Sub-Lt. E. I. Puddy to be Surg. Sub-Lt.

ROYAL ARMY MEDICAL CORPS.

Capt. J. G. Gill relinquishes the temp. rank of Maj. on ceasing to be empld. as Dep. Asst. Dir. of Hygiene and Pathology, N. Ireland District.

A. K. J. Finch to be temp. Lt.

ARMY RESERVE OF OFFICERS.

The undermentioned Colonels (late R.A.M.C.), having attained the age limit of liability to recall, cease to belong to the Res. of Off.: E. W. Bliss, T. H. M. Clarke, R. W. Clements, P. Evans, H. Hewetson, A. W. Hooper, A. E. C. Keble, C. B. Martin, G. A. Moore, F. S. Penny, H. V. Prynne, E. W. Slayter, G. St. C. Thom, H. S. Thurston, and C. W. Profeit.

SUPPLEMENTARY RESERVE OF OFFICERS.

Capt. J. R. S. McDowall, late R.A.M.C., T.A., to be Capt.

Capt. A. R. Balmain, late R.A.M.C., Spec. Res., to be Lt.

TERRITORIAL ARMY.

Maj. W. C. Gunn, from Sanitary Companies, to be Maj.

Capt. D. Mackie to be Maj.

Maj. A. W. Uloth, late R.A.M.C., to be Capt., and relinquishes the rank of Maj.

Sanitary Companies: Capt. A. Davidson to command the 5th (Scottish) Sanitary Company.

DEATHS IN THE SERVICES.

Capt. Thomas Barker Amyand Haggard, who died recently at the age of 50, was a graduate of Cambridge University, and studied medicine at St. Bartholomew's Hospital, where, after taking the Conjoint qualification in 1903, he acted as house surgeon. Later he was appointed house surgeon at the Victoria Hospital for Children, Chelsea, and clinical assistant at the Central London Ophthalmic Hospital. Capt. Haggard, who in 1907 married his cousin, a daughter of the late Sir Rider Haggard, quite recently retired from the Royal Army Medical Corps.

It has been officially announced that separation allowance will be granted to I.M.S. and R.A.M.C. officers when posted to stations such as Razmak, where their families are not allowed to accompany them. Allowances range from Rs.40 a month for lieutenants to Rs.340 for Deputy Directors of Medical Services.

A Fleet Order notifies that the loan of a surgeon commander R.N. is required by the Royal Australian Navy in exchange. The exchange is for two years and the officer must sail at an early date.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CXLVI.

THE TREATMENT OF BREAST ABSCESS.

WHILE the typical breast abscess of lactation follows infection through a cracked nipple, there are several precursors and variations whose treatment falls under this general heading.

Milk Engorgement.

This is produced by the blocking of a duct or ducts with epithelial débris during lactation or by the sudden termination of breast-feeding. It may simulate breast abscess, and if unrelieved passes into it. The breast becomes swollen, tense, and painful, and the affected ducts present an irregular hardness without the presence of the central area of softening which indicates pus. This condition will be prevented if care is taken of the nipples (see the Treatment of Sore Nipples, THE LANCET, 1924, ii., 1299), and suitable measures are used when lactation has to be terminated.

The breast should be supported by a thick pad of cotton-wool with a bandage passing beneath it and over the opposite shoulder. The nipple should be cleansed with pledgets of cotton-wool soaked in boric lotion, and the breast pump employed. Hot fomentations should be avoided, but lotio plumbi may give considerable relief. If the need for breast-feeding has ceased a belladonna plaster should be used, and the following additional steps taken to inhibit further lactation: drastic diminution of fluids, the administration of mist. alba m. and n., and if the breast is not too painful it should be firmly bandaged over layers of cotton-wool after evacuation with the breast pump.

Acute Puerperal Mastitis.

This condition is one in which the inflammation is spread through one or more lobes of the breast, and is the immediate precursor of breast abscess. Practically all cases arise from a crack or abrasion of the nipple. The breast shows all the signs of an acute inflammation and the general constitutional disturbances are very marked, while only the absence of an area of fluctuation or of a central softening distinguishes it from breast abscess proper. Until the latter diagnosis is made it should be treated energetically on the same lines as milk engorgement.

The following points should be noted. The abscess should not only be looked for in the area of greatest swelling in the breast substance, but also under the nipple, where one of the dilated ducts may be infected. The possibility of the pus tracking along the deep aspect of the breast must be borne in mind and increased prominence of the breast and pointing at the outer and lower margin watched for. In cases of doubt, if the constitutional symptoms are severe, an exploratory incision may be made. The incision should be planned as indicated in a subsequent paragraph. Even if pus is not found the congestion will be relieved and drainage provided in the pre-suppurative stage. The incision should be lightly packed with gauze soaked in flavine or acriflavine, or better still in an emulsion of equal parts of flavine and liquid paraffin.

Acute Puerperal Breast Abscess.

When this condition is diagnosed from consideration of the foregoing facts, extreme measures must be taken at once. No attempt should be made to treat the breast with fomentations, nor should any small incision be made under local anæsthesia. In order that the whole breast shall not become infected and subsequently fibrosed the affected lobes should be thoroughly opened up under a general anæsthetic.

Abscesses are most frequently found in the following situations: (1) under the areola, (2) deep to the nipple in one of the dilated ducts, (3) in the main secreting portion of the breast, (4) the "shirt button" abscess on the posterior surface.

(1) The subareolar abscess appears close to the nipple as a reddened area in which fluctuation can be readily detected. Usually the rest of the breast is unaffected. An incision should be made starting at the base of the nipple itself and extending radially from it over the centre of the affected area to the outer limit of the zone of induration. The incision should be deepened with the knife until pus is found, though in this area it is usually very superficial. The abscess cavity when completely opened up is mopped out and temporarily packed with gauze. On removing this packing careful inspection will show whether pus is welling up from a more deeply placed abscess.

(2) An abscess in a dilated duct deep to the nipple can be recognised by a markedly prominent and painful nipple surrounded by an inflammatory zone, in which deep œdema is present and possibly fluctuation. There may be a purulent discharge from the nipple. This type of abscess will extend outwards into the parenchyma unless opened. The treatment is the same as that of the subareolar type.

(3) The parenchymatous abscess has already been distinguished from acute puerperal mastitis. The skin over it is red and œdematous and the breast feels irregularly hard. This type of infection is commonest in the lower half of the gland, but a decision must be made as to which lobes are involved and the treatment varied accordingly. In the lower half of the gland an incision should be made commencing just within the areola and extending radially over the lobe in which fluctuation has been detected and ending at the periphery of the breast. The lobe should be fully opened, carrying the incision well into its substance; the finger should be introduced and any loculi in adjacent lobes containing pus sought for and opened. These are sure to communicate with the main abscess cavity in the lobe most affected, but unless the fibrous partitions are broken down satisfactory drainage will not be obtained. Care should be taken that a pocket of pus is not left unopened in the region of the nipple. A half-inch drainage-tube of red rubber, with thin walls and several side openings, should be placed in the incision emerging at the outer end, and the incision lightly packed with gauze soaked in flavine and paraffin emulsion. After 24 hours the wound should be dressed, the tube and packing removed, and the wound repacked. The packing should be changed daily. After two days it is best to discontinue the flavine packing and to substitute eusol or Dakin's solution. The wound should not be swabbed out; any débris or small sloughs are best removed by irrigation with saline or eusol at the time of repacking. This also makes the removal of the packing an easy and painless process. The packing itself should be done systematically, being gently laid in from end to end of the wound in long strips.

In the case of the upper half of the gland a completely radiating incision is not satisfactory. In the first place, it will be objected to by the patient; and secondly, it will not give dependent drainage. An incision 2 or 2½ in. in length should be made over the inner part of the most affected lobe, extending as before radially from the nipple. This should be placed so as to lie somewhat obliquely, so that an incision placed in the most adjacent part of the lower half of the breast may be made to communicate with it. The second incision need not be much more extensive than the first, and may be commenced outside the areola. The intervening bridge of breast tissue should be broken down with the finger, and a drainage-tube inserted from the lower incision. A smaller tube may be placed in the upper one, and both incisions packed as before.

Cases treated in this way will be found to clear up much more rapidly than those in which more conservative measures are employed. Under the eusol treatment the wounds granulate up very rapidly. As soon

as the discharge has ceased to be purulent the packing may be safely left in for two days, though a daily dressing is more comfortable. When the granulations reach the surface a dressing of sterile vaseline spread on gauze is best.

(4) The "shirt button" abscess is recognised by marked prominence of the breast with but slight signs of inflammation in the gland itself. An area of fluctuation may be detected at the outer margin of the lower half of the gland. The best incision for opening this type of abscess is a semilunar one on the margin of the gland, and the pus will be found between the breast and the pectoral fascia. When it has been evacuated the finger should be inserted and a search made for the area of gland substance from which it has arisen. It may be possible to open this adequately from the deep surface; if not, a small radially placed incision should be made over the affected lobe and carried through to the posterior part of the breast. Tubes should be inserted in both incisions, but packing will only be of use in the anterior one. The tube on the posterior aspect of the breast should not be removed for four or five days, being taken out when the dressing is done, boiled, and replaced. At the end of that time it may be removed altogether or a smaller one inserted for a few days more.

The possibility of this being a retromammary abscess arising from caries of a rib or from an empyema must be borne in mind. In both cases the breast will be prominent, and one of these conditions should be suspected from the absence of signs in the breast itself. An abscess from caries of a rib is the more common condition, and must be inferred when examination of both the chest and the breast is negative. Both these abscesses will be beneath the pectoral fascia, and they tend to point a little further out towards the axilla.

The subacute mammary abscess must be mentioned in passing as there is often some difficulty in differentiating it from malignant disease. It presents an œdematous indurated condition of the skin, often with retraction of the nipple, which very closely resembles carcinoma of the breast. However, the length of history, the association with recent lactation, and the absence of a lump should help in the diagnosis. Enlarged axillary glands will be present in both conditions.

Galactocele.

This condition is the only form of chronic breast abscess within the scope of this article, and must be mentioned in conclusion. Tuberculous mastitis, gumma, and actinomycosis are pathological rarities. It is a condition of retention of milk in a dilated duct, together with a mild degree of infection. It may be readily recognised as a distinct elevation near the nipple produced by a round or pear-shaped tumour, in which fluctuation may be readily obtained. It is painless, and firm pressure may produce a spurt of milky fluid from the nipple. In long-standing cases caseation of the contents takes place. It should be excised when lactation is over, the usual radiating incision being employed.

J. BASIL HUME, F.R.C.S. Eng.,
Chief Assistant, Surgical Unit, St. Bartholomew's Hospital.

Messrs. Watson and Sons (Electro-Medical), Ltd., have devoted their Bulletin No. 73 to apparatus producing what is known as artificial sunlight. The description of apparatus is prefaced by some general remarks on the nature, properties and biological significance of the part of the spectrum dealt with. Heliotherapy in medicine has come to stay and there is now a wide choice in the apparatus available. The two chief sources of artificial sunlight are either mercury-vapour lamps supplemented by some source to compensate for the lack of the longer wave-length, or open arc lamps of the carbon or tungsten or tungsten-cored type. There is a wide selection described and illustrated in this bulletin, and purchasers will do well not to forget that the best protective goggles are cheapest in the end and should be purchased against their absorbing power. It is impossible to tell by naked-eye inspection what is a good goggle and the spectrograph is necessary for this purpose.

Special Articles.

PROCEEDINGS OF THE ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.*

(*Continued from p. 829.*)

THE evidence which is summarised below is the final instalment of the report of the proceedings prior to October. The Royal Commission resumed its proceedings recently, and has been hearing further official evidence.

The National Council of Agriculture.

(App. LXXXV.; Q. 21051–21217.)

The National Council of Agriculture for England, represented by Mr. James Donaldson and Mr. Denton Woodhead, is strongly opposed to the pooling of the surpluses of Approved Societies, on the ground that the persons engaged in agriculture and other rural occupations are as a class healthier than most other industrial classes. The witnesses reminded the Commission that agriculturists had objected from the outset to the flat rate of contribution, and they cited statements made on behalf of the Government in 1911 to the effect that Approved Societies would be allowed to use their own funds for their own members.

It was elicited from Mr. Woodhead in the course of examination that one reason why his Society had a good surplus was that, though a rural workers' society, they excluded unhealthy members in the country.

* In previous articles the proceedings of the Commission were reported under the following headings: Introductory Note; The Scope of the Insurance Scheme (see THE LANCET, Jan. 31st, pp. 247–8); The Provision of Medical Benefit (Feb. 7th, pp. 301–3; Feb. 14th, pp. 355–6; Feb. 21st, pp. 403–5); Financial Provisions of the Act (Feb. 28th, pp. 454–7); Medical Certification and the Regional Medical Staff (March 7th, pp. 508–9); The Approved Societies and the Money Benefits (March 14th, pp. 564–5; March 21st, pp. 623–4); Evidence of the Hearts of Oak Society (March 28th, pp. 677–9); Evidence of the National Conference of Industrial Assurance Approved Societies and of the Manchester Unity Approved Society (April 4th, pp. 731–3); Evidence of Independent Order of Rechabites, of Rational Association Friendly Society, and of Miners' Societies (April 11th, pp. 784–6); April 18th, p. 839; Evidence of Mr. Alban Gordon (April 18th, pp. 839–40); Evidence of Joint Committee of Approved Societies, of Stock Exchange and Lloyds' Health Insurance Societies, and of Group of Catholic Approved Societies (April 25th, pp. 889–91); Evidence of the National Insurance Beneficent Society (May 2nd, pp. 943–4); Evidence of the British Medical Association (May 9th, pp. 993–5); Evidence of the British Dental Association and other Dental Organisations (May 16th, pp. 1044–6); Evidence of the Insurance Committees (May 23rd, pp. 1097–8); Evidence of Various Approved Societies (May 30th, pp. 1135–6); Evidence of the British Medical Association (June 6th, pp. 1184–6; June 13th, pp. 1248–50; June 20th, pp. 1315–6); Evidence of other Medical Bodies (June 20th, p. 1316; June 27th, p. 1348); Individual Evidence (June 27th, p. 1348); Medical Services in the Factory, Ministry of Health Inquiry Room, Evidence of National Sailors' and Firemen's Union and of Loyal Order of Ancient Shepherds (July 4th, p. 36); Evidence of Friendly Societies' Medical Alliance, South Wales and Monmouthshire Alliance of Medical Aid Societies, Friendly Societies' Medical Officers' Union, Association of Approved Societies, Standing Committee of Scottish Insured Women, and Society of Medical Officers of Health (July 11th, pp. 86–8); Evidence of the British Hospitals Association, the Sheffield Joint Hospitals Council, and the Middlesex Hospital (July 25th, pp. 181–2); Evidence of Opticians' Associations (August 1st, pp. 224–6); Evidence of Council of British Ophthalmologists, of Ophthalmic Benefit Committee, of Chemists, and of Drug Store Proprietors (August 15th, pp. 348–50); Evidence of Chartered Society of Massage and Medical Gymnastics, of the Ivory Cross, of Scottish Panel Chemists, Practice among Highland Crofters, and of National Farmers' Union of Scotland (August 22nd, pp. 402–3); Evidence of Nursing and other Women's Organisations (Sept. 5th, pp. 519–20); Views of Trade-Unions, Evidence of Approved Societies (Sept. 19th, pp. 618–9); Evidence of Joint Tuberculosis Council, Cambridgeshire Tuberculosis After-Care Association, London County Council on Treatment of Tuberculosis, British Social Hygiene Council, and London Insurance Committee (Oct. 3rd, pp. 722–3); Evidence of Society of Apothecaries of London, East of Scotland Dentists' Panel, Association of Poor-law Unions, Association of Parish Councils of Scotland, and of Mr. W. J. Braithwaite (Oct. 17th, pp. 828–9).

References to the paragraphs in the printed statements issued as appendices to the reports of the oral evidence are given thus: "App. X. 69," and references to the oral evidence thus—Q. 1369.

Evidence as to Casual Employees of Councils.

(App. LXXXVIII. and Q. 21317–21394.)

Mr. J. H. Barnby, of the Stepney Borough Council, stated that the Council employed persons on Sundays for the cleansing of the streets. He claimed that, as this employment was purely casual and intermittent, the men should not be subject to deductions for National Health Insurance contributions.

It was suggested to the witness that although this was part-time employment it was to some extent regular, and other types of casual employment were pointed out as having a better claim for freedom from contributions. It was also made clear to him that there was nothing in the Act to prevent the Council paying the whole contribution if, as appeared, they were willing to do so.

Delay in Paying Sickness Benefit.

(App. XCVII. and Q. 22731–22837.)

Miss M. A. Hilbery, who had at one time been a sick visitor for the Prudential Approved Societies, gave evidence in which she suggested that sickness benefit was often withheld from insured persons for long periods, and that this resulted either in return to work before recovery or actual hardship in regard to obtaining food.

National Insurance Audit Department.

(App. CI. and Q. 23209–23289.)

Mr. W. A. Middleton, acting chief auditor, gave an account of the whole machinery of audit of the accounts of Approved Societies. He pointed out that an Interdepartmental Committee reported in 1912 in favour of the employment of a whole-time audit staff, and said that their recommendations had been followed.

The witness said that the auditors undertook a great deal of work not ordinarily falling within the scope of an auditor's duties, but that there was no precedent for the working of such an enormous scheme as that under the National Health Insurance Acts, and a great deal of assistance had to be rendered to the societies.

Is it a fact that it is the smaller societies that cause you greater trouble in your audit than the larger societies?—There is no shadow of doubt about that. It is a question of part-time officials having these complicated Acts and regulations which are beyond their capacity—not beyond their zeal.

With regard to the falsification of claims for benefit, it was stated by way of illustration that sometimes the dates were altered on medical certificates in order to extend the benefit period, or such certificates were fabricated by copying a signature from a genuine certificate.

Experience shows that there is a greater temptation to construct false maternity benefit claims because of the comparatively large sums obtainable thereby—many such cases are disclosed by discovery of a second claim purporting to be in a member's name following at too short an interval upon another in the same name, either or neither being genuine.

The cases of fraud or failure in Insurance Committees' accounts have been few in number, and the amounts involved comparatively small.

Chartered Accountants of Scotland.

(App. LXXIX. and Q. 20342–20534.)

The evidence given on behalf of this body by Mr. John Reid was to the effect that the system of auditing by whole-time officials involved long delays and was not in the best interests of the successful working of the system, and that the multitude of duties which the auditors undertook showed a good deal of confusion as between auditing proper and actual supervision or inspection.

It was suggested that the auditing of the accounts of societies, both on the State side and the voluntary side, should be entrusted to outside professional auditors.

Evidence from the Department of Economics, University of Cambridge.

(App. LXXVI. and Q. 19794–19899.)

Mr. Joseph L. Cohen, of the Department of Economics of Cambridge University, criticised the present scheme of benefits as being wholly inadequate, and he advocated an extension of benefits all round. He stated that he could find no definite principle behind the present rates of money benefits, which bore no relation to any significant fact in industrial life. He also stated that—

Administration of insurance by the Approved Society combines all the faults and none of the virtues of insurance by industry or insurance by the State, or insurance by local authorities. It cannot claim the virtues of being a democratic form of organisation.

Mr. Cohen advocated a system of health insurance administered by the Minister of Health, the benefit being paid through the Post Office and employment exchanges with a State guarantee covering all emergencies in the life of a workman's family.

The Actuarial Basis of the Act.

(App. XCIV. and Q. 22252–22404.)

Mr. Walter Farris, secretary of the Loyal Hearts Friendly Society, questioned the necessity for the whole actuarial basis of the Act. He said:—

Under the National Health Insurance Act, spread over the whole of the insured persons, there must always be a similar range of ages and liability and the cost of benefits must remain fairly constant and proportionate to the number of insured persons, because the general public is forced to come under the Act at the age of 16 years and at the age of 70 ceases to be entitled to sickness benefits.

The witness suggested that there was no object in accumulating enormous reserve funds for the benefit of a future generation, and he proposed that there should be a system by which Approved Societies should be given credit from year to year for the expected sickness of their members who are actually alive at the commencement of each year, instead of the present system, which credits societies at the commencement of membership with the present value of the expected sickness of the member during the whole of the years that the member is expected to live.

His proposals included provision for continuous sickness benefit, the abolition of the three days waiting period, and exemption from arrears. He estimated that there would be accumulations in about 30 years' time of a gigantic sum of £818,000,000, which would never be wanted. It was suggested to the witness in examination that the figure was much more likely to be £200,000,000.

I want to know whether that trifling difference would make any change in your point of view with regard to the present system?—Even if I accepted that figure I should still contend that the system that I suggest would be far preferable and there would be greater benefits to the insured person.

Mr. Farris was reminded, with regard to reserves, that there was a process continually going on of eating up existing reserves and replacing them by new ones.

The Government Actuary's Evidence.

(App. LXXXVII. and Q. 21237–21316.)

Mr. Henry, the Deputy Government Actuary, gave evidence with regard to the 1922–23 valuations of Approved Societies. He said that, with the exception of the disablement experience of women—

the cost of benefits has been much below the provision made for it, 38 per cent. of the surpluses being attributable to this source. It should, however, be pointed out that the cost of disablement benefit in the case of both men and women has been constantly rising during the four years. The relation of the average cost of the period to the corresponding "expectation" is not altogether, therefore, a satisfactory index to present and future conditions in regard to this benefit.

Roughly speaking, the surplus on the last valuation amounted to about three times as much as that in 1918, but the surplus consists to quite a material extent of monies carried forward from the earlier valuation.

Since 1922 the sickness experience has been more unfavourable and there has been a steady downward curve so far as surplus is concerned.

The estimated total surplus of Approved Societies on the results of the 1922–23 valuations, the last of which will be published in 1926, is about £42,000,000, of which, said Mr. Henry, £14,000,000 must be reserved, leaving £28,000,000 disposable, to which has to be added £8,000,000 from the earlier valuation. The total disposable surplus was thus estimated at £36,000,000, or about £7,000,000 a year, to be spent over five years.

THE HEALTH OF THE NAVY IN 1922.

THIS report[1] gives a satisfactory account of the health of the Navy in 1922. Compared with the preceding year, there were fewer cases of illness or accidents, fewer deaths, fewer invalidings, and fewer men daily on the sick list. The table appended shows the distribution of the casualties.

For some reason the 4300 marines at headquarters are separated off from the 96,560 other men in the Service who are called the Total Force. In 1922, as against 1921, there was a reduction of about 16,000 in the total naval establishment, which falls readily into three great groups—viz., the Atlantic Fleet, the fleets abroad, and the Home Station. The last accounts for about half the establishment and the other two for a quarter each. The men on the Home Station include recruits, men under training or in depôts, and those awaiting discharge. The death-rate was 4·4 per 1000 on pp. 14–18 shows the number invalided for each disease group in each year of age or service. Invalidings are most frequent between 21 and 23 years of age, and about the fourth or fifth year of service. Deformities of the limbs cause most discharges in the first year of service; eye diseases go on steadily all through; ear diseases have their maximum in the first five years; heart diseases in the first two years and again after men have re-engaged; and tubercle has a maximum in the first five years and again, like organic heart disease, after re-engagement. It would therefore seem to be acquired, in part, in the service period. At the higher ages more men are discharged for tubercle than for venereal disease.

Of the vaccinations on entry only 8 per cent. (136) were primary. In 1921 28 per cent. of the new entries had to be vaccinated for the first time, and it looks almost as though the public were vaccinating itself as it should, but secretly. The Army has ceased to publish these vaccination statistics since the war, and no appeal to its experience can be made for confirmation or contradiction. Diphtheria and enteric fever had only half the incidence of 1921. Influenza was chiefly prevalent on the Home Station and in the Atlantic Fleet, and there were 67 cases in the latter as against 35 in 1921. The percentage case-mortality was 0·48 in the Atlantic Fleet and 0·16 on the Home Station; no one died in the Mediterranean. There were two meningococcus infections, of which one was at Harwich, where there had been no case for two and a half years. The boy had not been on leave for six weeks, and the examination of 456 contacts did not reveal any carrier.

HEALTH STATISTICS IN THE GROUPS, ROYAL NAVY, 1922.

Figures for 1921 are in italics, on the left of columns.

Per 1000 men.	Training establishment.		Atlantic Fleet.		Fleets abroad.		Home Station.		Total force.		Marines at headquarters.	
Number in group	*3,637*	2,293	*29,050*	27,200	*26,950*	27,750	*54,700*	41,610	*110,700*	96,560	*5,480*	4,300
Wounded or killed in action	—	—	*0·03*	0·03	*0·28*	—	*0·34*	0·02	*0·24*	0·02	*2·2*	1·62
Other injuries	*100*	105	*86·9*	85	*112*	119	*82*	87	*91*	95	*141*	122
Venereal disease	—	—	*107*	93	*179*	151	*81*	80	*113*	104	*52*	57
Other diseases	*1,200*	770	*290*	282	*427*	399	*404*	383	*379*	360	*459*	427
Total cases of disease or injury	*1,299*	875	*483*	460	*720*	668	*569*	550	*583*	559	*653*	608
Invalided	*61*	41	*18*	14	*28*	20·7	*32*	34	*23*	20	*45*	29
Dead	*6*	4·8	*4*	3·6	*4·4*	4·4	*2·9*	2·7	*3·6*	3·4	*1·6*	1·2
Sick daily	*77*	31·3	*18·6*	17·5	*29·9*	26·1	*27*	27	*25*	24	*21*	22
Loss of service—												
Per man in days	*14·7*	11·2	*6·8*	6·4	*10·9*	9·5	*9·9*	10	*9·6*	8·8	*7·9*	8
Venereal disease	—	—	*2·2*	2·1	*4·3*	3·02	*2·7*	2·6	*2·9*	2·6	*1·4*	1·7
Less venereal disease	—	—	*4·6*	4·3	*6·6*	6·5	*7·2*	7·4	*6·7*	6·2	*6·5*	6·3
New Cases of Individual Diseases (per 1000 men).												
Enteric fevers	—	—	*0·27*	0·22	*1·6*	0·6	*0·3*	0·18	*0·6*	0·33	*0·2*	0·46
Influenza	—	—	*35*	67	*35*	28	*27*	45	*31*	47	*6·7*	66
Pneumococcal infection (lungs)	*12·3*	3·5	*1·4*	1·5	*1·8*	2·4	*3·7*	3·3	*2·7*	2·5	*4·5*	4·4
Rheumatic fever	*18·4*	9·6	*1·7*	1·7	*2·3*	2·1	*2·5*	2	*2·3*	1·9	*3·8*	2·1
Tuberculosis	—	—	*2·3*	2·2	*2·3*	1·9	*2·4*	2·5	*2·4*	2·3	*3·6*	1·2
Appendicitis	—	—	*3·3*	2·7	*3·7*	2·9	*3·6*	4·6	*3·6*	3·7	—	—
Catarrh	—	—	*53*	43	*63*	73	*78*	70	*68*	63	*140*	76
Tonsillitis	—	—	*24*	23	*35*	31	*38*	32	*33*	29	*23*	23
Chancroid	—	—	*12*	12	*33*	28	*8*	5	*15*	14	*4*	2
Syphilis, first record	—	—	*12*	9	*17*	10	*8*	8	*11*	9	*5*	7
Gonorrhœa, acute	—	—	*58*	60	*89*	85	*46*	46	*60*	60	*22*	27
Total fresh cases, venereal	—	—	*82*	81	*139*	123	*62*	59	*87*	83	*31*	36
Scabies	*43*	31	*27*	12	*18*	10	*40*	25	*31*	17	*28*	11

in the fleets abroad and 2·7 on the Home Station; there were 99 deaths from drowning (54 of them in ships lost), 36 from tuberculosis, 32 from injuries, 25 from pneumonia, 13 from diseases of the intestines (10 from appendicitis), 12 from influenza, and 11 from malignant disease. The invalidings were, in order of magnitude, as follows: For diseases of the eye, 348; diseases of the ear, 260; tubercle, 198; gonorrhœa, 178; organic heart disease, 146; deformities of the limbs, 135; and neurasthenia, 111. Only 24 were invalided for syphilis, but there were three times as many in an average year before the war. A very valuable table

The other case, just as mysterious, was in a battleship near Constantinople, and neither was followed by any other case. The percentage mortality of pneumonia was 12 on the Home Station, 10 in the Atlantic Fleet, and 3 in the Mediterranean, which suggests that it is not without good reason that elderly persons are sent to the Riviera in winter. Tubercle caused much the same loss in 1922 as in 1921. Marines at headquarters had a liability, 1·16 per 1000, and for marines in ships it rose to 1·57; this was, however, a great fall from that of 1921 (3·2). The sick-berth staff had a liability of 3·18, which was the lightest they have had for years. The naval figures for venereal diseases are particularly useful, for they distinguish first

[1] Statistical Report of the Health of the Navy for the year 1922. Published by H.M. Stationery Office, London, 1925. Pp. 176. 6s.

infections, and in 1922 the cases of soft chancre and syphilis have decreased. Gonorrhœa cases were as before, but it is noted that this disease disappeared at Gibraltar when all brothels were closed. Prophylactic measures do not prevent these diseases because, in the opinion of medical officers (pp. 42 and 67), the victims are apt to be intoxicated and too careless to use them. Two cases of encephalitis lethargica occurred, one at Oban and one in China, and there were also two cases of anthrax, each ascribed to a new shaving-brush. Great attention is being paid to dental repair, and a 17 per cent. fall since before the war in diseases of the digestive system may be the result. Malignant disease (16 cases) showed a slight decrease; alcoholism was also less; two cases of mild poisoning were due to men strenuously treating their own colds.

We asked last year for more information about what happens to boys, to the cadets at Dartmouth, and to the younger men under training. If anything, rather less information is given. The tables are again rather inconsistent, in a manner unusual in Government publications, and those on pp. 170 and 91 do not bear comparison. Calculated on the figures of p. 170, pneumonia has greatly decreased, the rate being 3·5 per 1000, as against 12·3; there is no statement about tuberculosis. In the youths' training establishment the phenomenal death-rate of 23·52 per 1000 refers to two deaths only, but the fact that nearly one-third of the youths in the establishment (29) were invalided in five months, whilst only 16 were invalided from the *Ganges* in the whole year, seems to require explanation.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Posting of Food Prices in Paris.

ECONOMICAL buying of foods and other necessaries of life is as pressing a need to the housewife in Paris as it is in other great cities. A considerable difference exists in the prices demanded for identical articles in different parts of the city. The unduly high prices prevailing in quarters largely inhabited by wealthy foreigners are mostly due to carelessness in buying on the part of the householder, who leaves, without scrutiny, the purchase of food, fuel, and the like to servants, who, thus tempted, obtain illegitimate rebates and make unscrupulous bargains with the pettier merchants. Even dishonest bills are thus often presented to the householder, who fails to examine them and so permits the merchant and servant to divide unlawful profits. The prices of bread, milk, meat, eggs, butter, vegetables, sugar, potatoes, and other necessaries must, according to French law, be plainly posted up in view of the buyer. In this way confusion between different grades of the same article may be avoided. Extra charges for packing goods must also be plainly shown. Small merchants failing to observe the regulations mentioned are being continually fined. It would almost appear that the delinquents find it more profitable to pay the fines than to discontinue the bad practices. The vicious circles so produced are nearly always attributable to carelessness and indifference on the part of wealthy foreigners, who thus throw continually increasing hardships upon the citizens. A collateral aspect of the question is constituted by the high wages paid by foreigners to servants, who demand more than the Parisian is able to pay.

Whooping-cough.

Often in towns, and always in villages, the child suffering from whooping-cough is not isolated at home, and no precautions are taken to guard against the complications which may develop in the little patient, or to protect the other children of the family from infection. Whooping-cough is treated with contempt, because it is popularly believed to be a trivial complaint which must take its course and cannot attack adults. Further, it is the custom to send children with whooping-cough off to some friend in the country for a change of air. That is the popular estimation of the gravity of the disease, but Mr. F. Barbary, of Nice, has recently advocated that the Academy of Medicine should officially institute new and rigorous prophylactic measures. The first step would be the compulsory notification of whooping-cough, such notification at present being voluntary. The second step would be to forbid infected children to travel or mix with other children until permission was given by the doctor. The need for such measures might be brought home to the public by notices showing how whooping-cough, contrary to popular belief, can bring serious consequences, both immediate and remote, in its train. Mr. Barbary further considers vaccinotherapy to be a valuable curative and prophylactic agent in this disease.

Paris Milk.

The French Milk League, interested in improving the Paris milk-supply, has just passed a series of resolutions designed to improve the handling of milk all along the way from producer to consumer. The League especially insists on the need of clean milk for infants and young children, and on the desirability of stricter supervision of the entire dairy industry. Certain definite proposals will be presented to the municipal council by the deputy representing the quarter in which lies the Saint Louis Hospital.

Treatment of Cancer of the Rectum.

In a valuable paper on the treatment of cancer of the rectum, delivered at the recent surgical congress, Mr. Schwartz and Mr. Gaudier described the immediate and remote results of the following methods of surgical interference: (1) Abdomino-perineal excision of rectum with permanent abdominal artificial anus; (2) resection, bringing down the upper part of the rectum to form a perineal anus; (3) abdomino-perineal resection, bringing down the upper part of the rectum and preserving the anal sphincters; (4) resection by the abdominal route alone, forming artificial abdominal anus with upper part of rectum, and leaving lower part in situ after closure. The writers have further studied the respective values of surgery and radiation in the light of most recent work. Radiation treatment of cancer of the rectum has indeed made great progress during the last five years, but the results have not been so satisfactory as those obtained in treatment of cancer of the uterine cervix. Where surgery can be employed it is more valuable than radiation, and for the present, these writers hold, every case of cancer which is clearly operable should be left to the surgeon. In cases of inoperable cancer, the best results so far have been achieved by combining surgical intervention with radiation. When this combination is possible—that is, in the absence of metastases, and in patients who are neither cachectic nor too advanced in years—the method adopted should be (1) to make an iliac anus, (2) subject the patient to slow and extensive radiation, and (3) remove the cancerous growth whenever conditions permit.

The Virus of Opilaçao.

Opilaçao is a parasitic disease widely distributed among the poorer classes in Brazil, conveyed to man through the bite of a nocturnally blood-sucking hemipterous insect, the triatoma, or *barbier*. The insect occurs on the walls of dwellings. Prof. Carlos Chagas, director of the Brazilian Public Health Service, to whom we owe most of our knowledge of the disease, delivered on Oct. 23rd, at the Paris Pasteur Institute, an interesting lecture upon it, accompanied by projections. The pathogenic agent which lives in the intestine of the insect host and is highly virulent has been shown at the Cruz Institute to be a flagellate trypanosome, and it has been named *Trypanosoma cruzi*. It may infect dogs, rabbits, other laboratory animals, man, and the armadillo, the latter, indeed, serving as a reservoir of the virus. The symptoms which depend upon the organs invaded include fever, thyroid enlargement, degeneration of muscular fibres, cerebral reactions,

and other effects. In dogs the signs are mainly paralytic. Like the treponema, the trypanosome may be transmitted from mother to embryo.

Congress on Stomatology.

This congress, which met from Oct. 19th to 24th, devoted much of its time to pyorrhœa. Dental bridges, vaccination, radiography, the ultra-violet rays, masseteric anæsthesia, anæsthesia of the inferior maxillary nerve trunk, and prosthesis were other subjects of interest discussed.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Resignation of Prof. F. Chvostek.

Dr. Franz Chvostek, the head of the Third Medical Clinic of Vienna, and professor of internal medicine, has tendered his resignation to the Ministry of Education, an action which has caused surprise and dismay to his numerous friends and patients. It is the more surprising as Dr. Chvostek previously resigned this office several years ago, but at the earnest request of the Ministry he withdrew his resignation and continued his work under more favourable personal conditions. Once again all efforts are being made to induce him to remain in office, and the Senate of the University has added its plea to that of the Educational Board. The third clinic, of which Prof. Chvostek was the chief organiser, has been a source of most useful scientific research ever since the work was started some 20 years ago. It may be added that the third clinic, which is still situated in the old General Hospital of Vienna, is very much handicapped by the limited space available for it in the ancient building.

Changes in the University Teaching Staff.

The well-known orthopædic surgeon Prof. Adolf Lorenz definitely resigned his professorship last spring, and Prof. Hans Spitzy has been appointed to the directorship of the University Orthopedic Ambulatorium, as it is officially termed. As successor of Lorenz, Prof. Spitzy is at present at the head of the famous orthopædic hospital in the fifth district of Vienna—the biggest of its kind in Central Europe—where he has built up a model institution for the cure, after-care, and re-education of war-crippled soldiers, that compares favourably with any other such institution in the world. The tradition of the Lorenz clinic—which is well known to American doctors—will be continued by Docent Dr. Julius Hass, the first assistant of Lorenz. He has been appointed director to an orthopædic ward and will take over this office shortly.

Closure of the Third Obstetric Clinic.

It is understood that the third obstetric clinic (Prof. Ludwig Piskacek) will be closed shortly, and with it the oldest teaching institute for midwifery in Austria, an event which means a marked diminution of the teaching facilities of Vienna. The third clinic was never intended for instruction of students, but many doctors obtained there very good post-graduate instruction, and had a chance of serving a term or two as house surgeons in the institute, thus obtaining excellent opportunities for obstetric practice. In future midwifery will be taught in the remaining two gynæcological clinics, where also the regular clinical lectures and courses for students are given.

Meteorological Conditions and Human Health.

In a lecture delivered before the Medical Society Prof. Julius Bartel discussed the influence of climatic—or rather meteorological—conditions upon the mortality statistics, giving extensive statistics and figures. Prof. Bartel's conclusions are worth consideration. He emphasises the inadequacy of our present knowledge of the climatic factors, which is obtained from post-mortem examination only, but even this is sufficient to prove that these factors have a very considerable influence on the daily mortality curve. Consideration of the constitution of the individual also shows us that the incidence of death is due not only to nature of the illness, its ætiology, and the constitution of the patient, but also to a fourth factor—namely, atmospheric conditions, such as barometric pressure, temperature, humidity, and winds. Analysis of individual cases, and control by autopsy, enable us to discern certain rules, but further research from the point of view of the clinician is very much needed. At present we can say that arteriosclerosis and tuberculosis respond to climatic changes, and the status lymphaticus usually reacts to barometric variations. It is also well known that suicides are much more frequent between April and July than in the autumn or winter. Perhaps mental conditions react differently at various periods of the year and under different weather conditions. Greater difficulty is encountered in considering the effect of climatic variations upon the "healthy" or the "apparently healthy" organism. Health and disease are only stages, very nearly related, and the susceptibility to weather factors makes itself manifest not only in the individual, but also in the masses, in the political, and social reactions of mankind.

Modern Treatment of Lupus.

At a recent meeting of the Vienna Medical Collegium Prof. Richard Volk read a paper on the treatment of lupus. He commenced with a survey of the older methods used before the advent of electrotherapy. The surgical excision of the diseased parts, immediately followed by grafting (Lang's method) was, he said, fit only for a small percentage of cases. Scraping, cauterisation, thermocautery were no longer advocated, though galvanocautery might still be applied with good results in lupus of the mucous membranes. High-frequency currents might be used for solitary nodules in the skin. The exhibition of the various tuberculins, emulsions of bacilli, had not given the satisfaction it promised at first. Chemotherapy (copper, krysolgan, salvarsan) given alone had also failed; only erythematode lupus seemed to respond favourably to krysolgan. Pyrogallol and resorcin were merely adjuvants in phototherapy as now employed for the hypertrophic and ulcerous forms of lupus. X ray treatment gave very good results, and the application might be repeated several times, a medium dosage being given. When the hypertrophic form had been transformed into a "plane" or "flat" stage, Finsen light or mercury-vapour lamps are used. Finsen laid great stress on the use of the pressure lens. Prof. Volk, however, preferred to work without the pressure lens and got better results. This method is also much more rapid and economic. General irradiation of the whole body by artificial or natural sunlight was a most useful help; of course, it was necessary to attack any coexisting tuberculous affection, such as glandular, mucous, or osseous manifestations of the disease, as well as pulmonary tuberculosis. Constant supervision and control of the patients for many years was of paramount importance to avoid relapses. The application of radium or of Ponndorf's vaccines was also useful, especially in localisations on the mucous membranes, but only in selected cases, and one must be on the look-out for possible untoward results, such as telangiectasis or hyperkeratosis.

Reorganisation of the Dental Classes of the Medical Faculty.

The new University term opened recently, and a serious shortcoming in our medical instruction has been removed by the new regulations pertaining to dental teaching of doctors. Having obtained the degree of M.D., the applicant desiring to practise dentistry will have to spend four semesters (half-years) at the institute of dentistry of Vienna. The curriculum comprises theoretical and practical

instruction, and consists of classes on conservative, surgical, and prosthetic dentistry, including orthodontic and technical work in the practical laboratory. After the four semesters every student has to pass oral, written, and practical examinations. Hitherto our dental surgeons went, as a rule, to Germany to get their up-to-date experience in dentistry.

MEDICINE AND THE LAW.

Limitations of Actions against Public Officers.

PARLIAMENT has wisely recognised the fact that public servants cannot discharge their duties satisfactorily unless reasonably relieved from personal liability. In England and Wales the Public Health Act of 1875 protects local authorities, their members, and officers in this respect. The Public Authorities Protection Act of 1893 usefully enacts that no action is to be commenced against anyone for anything done in pursuance of an Act of Parliament or in intended execution of a public duty unless the proceedings are commenced within six months. The Public Health (Scotland) Act of 1897 goes further. It fixes a time limit of two months as the period after which no proceedings shall be begun against persons performing duties under the Act. The value of this protection is illustrated by a recent Edinburgh case (Gorrie *v.* Smith), where a doctor was sued in the Court of Session in connexion with the death of a patient treated at a venereal diseases centre in Glasgow. The claim arose in the following way. The claimant's wife, nursing a baby 3 weeks old, found the child apparently suffering from cold in the eyes. Dr. Elizabeth Chalmers Smith, in charge of the local child welfare clinic, prescribed an ointment and at the same time advised the mother to visit the dispensary at Black-street, Glasgow, which is an approved centre for the treatment of venereal disease. Dr. Smith had provisionally diagnosed the case as one of syphilis and she naturally wished the mother's blood to be tested. She did not inform the patient of her opinion, but gave her a sealed letter addressed to Dr. Elizabeth Helen Smith, the doctor in medical charge at Black-street. On August 6th last year the mother attended at Black-street with her baby. The provisional diagnosis was confirmed. The mother was questioned and examined, and, as a result, she was informed that her child was suffering from "poison in its blood." It was suggested that an injection should be administered which would benefit the child; it was added that an injection would act as a tonic to the mother herself. The doctor also proposed to take a sample of the mother's blood for test purposes. The mother assented to the treatment and a first injection was administered. A week later she again attended at Black-street with her child and received a second injection. She was informed that the test showed nothing. Soon after she returned home she became ill; she was removed to the infirmary and died a few days later on August 17th.

Lord Murray dismissed the action with costs. His decision was based upon the primary point that death had occurred in August and legal proceedings had not been begun until the following January, many weeks after the two months statutory time limit under the Public Health (Scotland) Act had expired. On behalf of the husband, who claimed £2000 reparation against Dr. Elizabeth Helen Smith for the loss of his wife, an interesting argument had been put forward in the endeavour to circumvent the statutory limitation which otherwise manifestly barred his claim. First, it was contended, the dead woman had not herself been a patient at all. Secondly, as she was never made aware of the diagnosis, she could not be regarded as a voluntary patient for the purpose of venereal disease treatment under the Public Health Act, so as to bring the doctor within the protection which that Act confers. Lord Murray could not accept this view. It was clear, he said, both on the admitted facts and on the documents that mother and child were alike patients. It was a case of derivative treatment and the position of the mother and the child could not be severed. He refused to hold that one and the same proceeding on the part of a medical practitioner, when plainly intended as a performance of a statutory duty, could be within or without the protection of the Act according to the precise state of knowledge of the patient as to the particular character of the disease diagnosed.

The sympathy naturally felt towards the husband in this particular case need not obscure the conclusion that such measure of protection as the Scottish Public Health Act affords was never more essential to the medical practitioner than in relation to the difficult and delicate duties performed at centres for the treatment of venereal disease. In some respects it is unsatisfactory that the medical facts of the case were not fully examined in court owing to the claim being dismissed on the preliminary ground of the statutory protection. For the claimant it was stated that both he and his first child had always been healthy and free from disease and that blood tests of himself and his two children, taken since the wife's death, had all shown negative results. The learned judge was careful to point out that there was no evidence before him as to the precise cause of death. He expressly refrained from giving any opinion or making any finding on this head. The facts were not before him. It is only fair to Dr. Smith to point out that the case ending as it did upon the preliminary objection in law, not only was there no finding that she was in any way at fault, but no opportunity arose for her to make any answer to the allegations upon which this unsuccessful claim was founded.

ST. THOMAS'S HOSPITAL WAR MEMORIAL.

THE Duke of York on Nov. 2nd laid the foundation-stone of the College House Extension and Students' Memorial which is being built in connexion with St. Thomas's Hospital and Medical School. The building will be on the opposite side of Lambeth Palace-road to the hospital and will contain club rooms for students and 72 bedrooms; 12 of these will be reserved for members of the resident staff of the hospital, and the remainder will be let to junior students and others. The cost of the scheme, including the purchase of the site, will be £58,000, towards which the Medical School is raising a fund of £10,000. Sir Arthur Stanley, in welcoming the Duke of York, traced the interest in the hospital which had been taken by the Royal House from the days when Edward VI. restored it to the rights and privileges, and some of the property, which his father had taken away. Queen Victoria had laid the foundation-stone of the new buildings in 1868. Sir George Makins said that in the war 1481 of those connected with the hospital had joined up, including 214 members of the nursing staff, and of the whole number 81 had died. It was felt that no form of monument would bring the memory of those who gave their lives more constantly before the future members of the school than the provision of quarters which would be their home whilst they were working in school and hospital. The provision of this hostel was also an indication of the gradual conversion of the University of London, of which the school was a constituent college, from a purely teaching and examining body to a complete university with residential accommodation for its students. The Duke of York laid the foundation-stone with the same level as was used by Queen Victoria. The religious part of the ceremony was conducted by the Bishop of Southwark and the Hospitaller, and a guard of honour was furnished by the medical unit of the University of London O.T.C.

THE LATE MR. HERBERT H. FOLKER, O.B.E.—Mr. Folker, who died on Oct. 20th in his sixty-second year after a long and painful illness, was a well-known North Staffordshire surgeon. The son of a medical man, he was educated at the Newcastle High School and at Epsom College, studied medicine at Charing Cross Hospital, and qualified in 1889 with the M.R.C.S. Eng. and the L.R.C.P. Lond. Returning to Staffordshire, he commenced practice at Shelton, and later succeeded his father as certifying surgeon under the Factory Act for the Hanley district. Mr. Folker, who took a prominent part in the movement for the compulsory notification of ophthalmia neonatorum, was appointed hon. assistant ophthalmic surgeon to the North Staffordshire Infirmary in 1892, ophthalmic surgeon in 1894, and hon. consulting surgeon in 1914. On the outbreak of war he joined the R.A.M.C. and did good service in various districts of Yorkshire, Derbyshire, and Nottinghamshire. He leaves a widow and a married daughter.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the health statistics of six counties for the year 1924 :—

Name of county.	Estimated mid-year population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Somerset	398,300	16·3	12·3	0·80	1·40	2·3	30	54	3·7
Derbyshire. ..	607,600	20·7	11·0	0·78	0·99	2·3	34	70	3·9
Lincolnshire, parts of Lindsey	259,900	19·7	11·8	0·98	1·38	2·1	29	60	3·9
Hertfordshire ..	344,200	16·0	10·6	0·77	1·45	1·9	29	51	3·3
East Sussex ..	258,600	14·0	11·8	0·87	1·74	1·9	29	48	3·3
Cumberland ..	221,010	20·3	13·0	0·89	1·23	2·5	32	72	5·2

Somerset.

Dr. W. G. Savage reports an increase in the deaths from influenza and the diseases of the respiratory system; the 268 deaths from influenza represent an increase of 202 over those of 1923. A table of the deaths at various age-groups during the last nine years shows that the deaths over the age of 65, which in 1911 formed 45·3 per cent. of the total, accounted for 53·6 per cent. in 1924. Twenty-five cases of ophthalmia neonatorum were notified, and there were 61 cases of encephalitis lethargica with 15 deaths, as compared with 8 cases and 3 deaths in the previous year. A special report on the mental impairment of affected school-children has been made to the Board of Education. No propaganda work with regard to venereal diseases was carried out during the year, and Dr. Savage considers that it is very difficult to arouse interest in this subject treated by itself and that it is best dealt with in courses of instruction on social hygiene along with other health matters. As regards tuberculosis he reports as unsatisfactory the fact that of 550 new cases of pulmonary tuberculosis 38 per cent. were detected in the early stage of the disease, 39 per cent. in the second stage, and 22 per cent. in the third stage and practically incurable. The percentage of contacts who attended the dispensary for examination was about 20, the figure for 1923 being 26. About 32 per cent. of the contacts of pulmonary cases showed suspicious or definite signs of tuberculosis. The new sanatorium at Quantock Lodge was not available for patients till June, 1925, and some of the buildings were used to house a holiday camp for 40 girls and 40 boys suffering from general debility and malnutrition. There were 973 new houses, compared with 648 in the previous year. In spite of urgent need, however, only 31 houses were built in Bridgwater, and in agricultural areas there has been little building. Dr. Savage refers to the subletting of parlour houses, and cites the example of the council houses in Weston-super-Mare. Of 118 houses, completed in 1922, 73 are occupied by one family, 44 by two families, and one by three families. In three instances the rent and rates were 15*s.* 6*d.* per week and the sub-tenants paid 9*s.*, 7*s.*, and 10*s.*

At Weston-super-Mare, Clevedon, and Minehead there are public slaughter-houses only, but in the rest of the county there are 350 private slaughter-houses. The new meat regulations require slaughtering to be done at fixed times or after due notice. The value of these regulations, says Dr. Savage, will largely depend upon the experience and knowledge of the sanitary inspectors, only a few of whom hold a meat certificate and some of whom have had no training in meat inspection at all. To make the new regulations of practical value facilities must be available for these men to have revision courses in meat inspection. The majority of the county's 5299 registered milk producers are taking a much greater interest in clean milk production. The control in rural districts is very unequal. In some districts the officials give only perfunctory supervision, while in other districts, such as Axbridge and Langport, much attention is being given to the work, and considerable improvements in equipment and methods are being secured. During the year there have been 32 milk demonstrations at various farms, and in the milk competition of 1924–25 30 of the competitors in the fourth series of tests attained the standard of Certified Milk, 22 that of Grade A, and only 14 failed to reach Grade A. The graded milk movement does not make much headway. At the end of 1924 there was one producer of Certified Milk, one of Grade A (tuberculin tested), and two of Grade A.

More antenatal work is being done. Cards are supplied to the midwives for recording the results of visits paid before birth. Examinations of urine, &c., are made for midwives, free of cost, in the county laboratory. Further steps have been taken to distribute leaflets to expectant mothers and the facilities for granting milk to them have been extended. Tables are given showing that over 66 per cent. of the babies 3 to 4 months old are entirely breast-fed in the rural districts and about 60 per cent. in the urban districts. The percentage of 1924 births attended by trained midwives was 50·8 and by "bona-fide" midwives 3·7. The remainder were attended by medical men, with the exception of a small proportion attended by uncertified women. The trained midwives sent for medical aid in 23 per cent. of their cases, the "bona-fides" in 12 per cent.

Derbyshire.

Dr. W. M. Ash presents the report for 1924, but only took up his duties as county medical officer on June 1st, 1925. There has been an increased prevalence of small-pox of a mild type. There were 1123 notifications, with one death in the Chesterfield district. The council has still no facilities in the county for the institutional treatment of surgical tuberculosis, but preparations are being made to provide 50 beds at Bretby Hall for the treatment of early cases of bone and joint tuberculosis in children. Of 320 deaths from tuberculosis notified by the local registrars to the county medical officers of health 120 were not notified under the public health regulations before death, 51 were only notified within four weeks before death, and 44 during the second month before death. At the end of 1924 there were 127 shelters lent out to tuberculous cases; inspection showed that 111 were being used in a satisfactory manner and the others were not being used. The tuberculosis officer, Dr. A. N. Robertson, reports a great need for a 20 to 30-bed pavilion for advanced female cases. Most of the new "cures" are tried at the sanatoriums, but hitherto with unsatisfactory results. Dr. Robertson considers that artificial pneumothorax "is most required in an advancing toxic case of recent onset, which has not responded to three months absolute rest in bed and where the disease is mainly unilateral and the lung is breaking down, causing high fever and rapid pulse." Chronic unilateral cases of long duration with shrunken chest do not urgently require such treatment, and the adhesions frequent in such cases prevent it being successfully carried out. Dr. Robertson's experience of the after-history of large numbers of such cases is that they often do quite well without this special treatment. Five new cases were started on the treatment during the year and it was continued in four old cases. "One can positively say that by its use in picked cases a dying man can be changed in a short time into a comparatively healthy, happy individual." Dr. Robertson does not approve of

beds being used for the education of advanced cases, and advocates that the education process be carried out at the home. The beds are urgently needed for early cases and the high mortality among the advanced cases after discharge gives a bad impression of the curative power of the sanatorium. After an average of ten notifications of encephalitis lethargica during the last three years there was an increase in 1924 to 84 notifications with 23 deaths. Out of 32 cases among school-children 7 died, 1 left the county, 8 showed no sequelæ, 9 showed slight or severe mental changes, 1 some physical deterioration, and 6 the Parkinsonian syndrome.

Lincolnshire (parts of Lindsey).

Dr. R. Ashleigh Glegg points out defects in the tuberculosis scheme. Many advanced cases are allowed to remain at home, partly cured cases return to insanitary homes, and there is great lack of an orthopædic scheme to prevent children being crippled by tuberculosis of bones and joints. He recommends the establishment of a central hospital with a specially trained staff and X ray department, to be fed by out-patient clinics conducted in the various districts by the hospital staff.

Dr. Annie T. Brunyate makes many recommendations for the improvement of the maternity and child welfare scheme, which are all endorsed by Dr. Glegg. More maternity homes are needed. The usefulness of the antenatal clinic at Scunthorpe will be much increased by the opening of a new six-bed home there. An antenatal clinic was opened at Gainsborough in October and one will shortly be opened at Cleethorpes. The staff of health visitors needs to be increased in order to cope with the work, and the alternative is suggested of providing them with motor-bicycles instead of push bicycles. Dr. Brunyate points out that a health visitor at the end of an exhausting day of travelling by push-bicycle cannot have the same interest in the mother nor exert the same power of persuasion as at the beginning of the day. This is so evident to the nurses that several of them have managed to run motor-cycles or light cars to their own pecuniary loss, but to the great benefit of their work. Courses of post-graduate lectures for midwives were given during the winter at Lincoln, Cleethorpes, and Scunthorpe.

Hertfordshire.

Dr. H. Hyslop Thomson states that the maternity and child welfare scheme includes both official and voluntary effort. There are 13 county council centres, 13 voluntary centres, and 9 voluntary weighing centres. Maternity beds are provided at Hertford, Hitchin, Hemel Hempstead, and Watford. There is a convalescent home at St. Leonards, and there are orthopædic, massage, and dental clinics. There is much need for additional dental clinics at Hertford and Bishop Stortford. Commenting on the increased number of deaths of infants during the first weeks of life, Dr. Thomson stresses the need for antenatal work. The births in the county numbered 5496 and only 258 expectant mothers attended the council centres. In 1923 the number was 200. Special efforts have been made to search out the mental defectives in the county, through the medium of Poor-law authorities, school attendance officers, medical practitioners, and nurses. Parents sometimes withhold information owing to the fear of their children being removed to a special school or institution. This difficulty would in time be met by the provision of an institution to which parents had easy access. The absence of adequate accommodation in certified institutions, more especially for low-grade and complicated cases, is sometimes seriously felt. A certified institution is needed which would provide accommodation for three types of case of both sexes—namely, employable, unemployable, and hospital cases. Such an institution should be so constructed as to allow for future expansion and should provide facilities for the training and employment of defectives in various occupations.

East Sussex.

Dr. Alex. G. R. Foulerton reports that the scheme for coördinating the county council's health nursing work with the general nursing, by close coöperation with the East Sussex Nursing Federation, continues to work very satisfactorily. Infant visiting under the county scheme is carried out by the nurses of the District Nurses Association, and there are only eight parishes, with a total population of about 5000, which are without the services of a district nurse. Good progress has been made with the assistance of the East Sussex Voluntary Association for the Blind in providing for the more pressing needs of the necessitous blind in the county. The recently made register of the last named includes 260 persons. In addition the county education committee provide education in special schools for blind children under 16 and secondary or technical education for certain blind persons over the age of 16 who are likely to benefit thereby.

Cumberland.

Dr. F. H. Morison reports that although the infant mortality of the county has decreased to 72, it remains in five of the urban districts at over 100. Cockermouth had an infantile mortality of 131 in 1924 and 132 in 1923. Dr. A. H. Towers, in his account of the work of the clinics at Cleator Moor and Millom, comments strongly on the ill-health of some of the mothers. He says that in these districts the poorest and most ill-nourished infants are those which are being breast-fed, and the full effect of continued unemployment, poor feeding, and housing is there seen. "The average mother is quite unfit to feed an infant by the breast; it is quite a common occurrence for mothers to arrive at the clinic markedly dyspnœic and cyanosed, with tachycardia and general cardiac irregularity, and anæmia is found to be intense." Under such conditions, he says, the infant is deriving no good from breast feeding, while the damage to the mother's health is profound. On weaning the improvement in the infant is obvious, but the mother living under these conditions only recovers slowly. At Cockermouth there is no infant clinic, but there are clinics at two other districts which have infant mortalities of 100 each—namely, Egremont and Arlecdon-cum-Frizington. 186 cases of small-pox were notified in the county during 1924 with no deaths. The Englethwaite Industrial Colony for consumptives is to be closed at an early date and its conversion into an institution for delicate children is under consideration. The average number of beds occupied at the colony during the year was 33, and there has been less demand for the beds on the part of ex-Service men with pensions. The net cost of the colony during the year, after allowing for payments for ex-Service men, receipts from the market garden, poultry farm, clog making, and joinery and all other credits was about £4000.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 24TH, 1925.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 67; scarlet fever, 2602; diphtheria, 1240; enteric fever, 65; pneumonia, 965; puerperal fever, 43; cerebro-spinal fever, 5; acute poliomyelitis, 11; acute encephalitis, 4; encephalitis lethargica, 42; dysentery, 8; ophthalmia neonatorum, 115. There were no cases of cholera, plague, or typhus notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, 25 from measles, 11 from scarlet fever, 15 from whooping-cough, 38 from diphtheria, and 41 from influenza, the last named being a slight decrease from the previous week. In London itself there were 10 deaths from diphtheria, 1 from whooping-cough, 8 from influenza, and 31 deaths of infants under 2 years of age from diarrhœa and enteritis.

SCHOOL MEDICAL SERVICE.

THE following is a summary of the reports of school medical officers:—

Name of district.	No. on roll.	Av. elem. school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.*
Cambridgeshire C.C. ..	9,897	8,993	2,927	5,979	11·6
Gloucestershire C.C. ..	41,022	—†	11,805	8,298	37·8
Durham C.C.	—†	125,183	39,235	18,113	24·8
Northumberland C.C. ..	—†	—†	14,937	11,725	20·09
Lindsey C.C.	39,018	—†	11,651	6,651	15·95

* Excluding dental defects and uncleanliness. † Not given. C.C. = County Council.

Cambridgeshire.

Dr. F. Robinson gives interesting figures showing the gradual decrease in malnutrition from 19·4 per cent. in 1914 to 4·1 in 1920, and the rise again to 11·8 per cent. in 1924. The nutritional standard of the school-children apparently varied directly with the wages and state of employment. Cod-liver oil is supplied to all ill-nourished children, but only a few of the worst cases of malnutrition are sent to the residential open-air schools run by neighbouring authorities. The standard of cleanliness is apparently satisfactory, though no cleansing surveys are carried out by the district nurses who act as school nurses. The teeth of all children from 5 to 14 years were inspected and only 36·2 per cent. were found to require treatment, and of these 65·1 per cent. actually received it. The necessity for adopting some scheme for orthopædic treatment is stressed, as is also the need for appointing a physical training instructor. No special classes or schools are run for abnormal children, but it is hoped to start some classes for backward children in the near future. Strong comment is made on the unhygienic state of many of the non-provided schools.

Gloucestershire.

In addition to "cleansing surveys," much home treatment is given in the outlying districts by the district nurses who carry out the school duties, and Dr. J. Middleton Martin points out there has been a 60 per cent. reduction of pediculous heads since the inception of the school service in 1908. In the same time defects of the nose and throat have been reduced by 30 per cent., largely owing to the increased attention given in early life. A beginning has been made in the orthopædic treatment of physically defective children. One of the surgeons from the Cheltenham General Hospital visits neighbouring schools and it is hoped that further provision will shortly be made. A few schools make their own arrangements for feeding necessitous children but no official provision is made, and Dr. Martin rightly deplores the absence of any open-air schools in the county. 60 per cent. of the children examined (6 to 9 years inclusive) required dental attention and of these 70 per cent. obtained treatment. No special provision is made for physically or mentally defective children.

Durham.

Dr. Sydney Havelock, the deputy school medical officer, in the absence of the school medical officer, Dr. T. Eustace Hill, presents a well-written and interesting report. He rightly states that one dental officer can only touch the fringe of the dental work in a county like Durham, and urges the necessity for open-air school provision and for the adoption of an efficient orthopædic scheme, &c. Arrangements are now being made for a definitely organised scheme for operative nose and throat treatment. Interesting features are the short extracts of reports from the assistant school medical officers on the actual conditions found at the examinations; these are essentially of more value than the mere recording of statistical data. Dr. Lance Stanton-Cook calls for the earliest possible treatment of squint, and makes a strong plea for the employment of an oculist in the child welfare scheme. Dr. H. G. Donald definitely associates the prevalence of threadworms with defective personal and general hygiene. To see toddler children and pet dogs engaged in a necessary part of their toilet in the street, where later will be the mud-pies, is to solve the mystery of the method of conveyance of the eggs of the oxyuris. Dr. Lillie Johnson finds that healthy girls who take regular exercise suffer no disability during the menstrual periods. Institutional care is found for most of the blind, deaf, and epileptic children, while the council provides a residential school for mentally defective children.

Northumberland.

Apart from a few remarks on nutrition, Dr. W. F. J. Whitley confines his report mainly to the statistical returns required by the Board of Education. It is thought that since only one whole-time and one part-time dentist are employed, the medical inspectors could keep the dentists fully employed in treatment and do away with the necessity for dental inspections. The assistant school medical officers referred for treatment 2293 children with four or more carious teeth, but only 1414 children received treatment, apart from 600 re-treated during the year. The value of the statistical dental return must be negligible in comparison to the waste of the dentist's time. The numbers of exceptional children in the county appear very small; for instance, there are only 138 feeble-minded and 114 crippled children. No special provision is made by the council for such children. Dr. O'Connell O'Sullivan concludes that the malnutrition existing in the children is due to defect in the quality rather than the quantity of food; and Dr. W. L. M. Gabriel has drawn up an interesting table showing the relation of weight to height at various ages, and compares the results with similar data from Newcastle, from the Anthropometric Report of 1883, and from Detroit, U.S.A.

Parts of Lindsey (Lincoln).

Dr. Ashleigh Glegg stresses the value of coördination between the various branches of the public health activities. It is an advantage for medical officers and nurses to meet parents in more than one capacity, but we do not like the idea of associating the nurses with the work of the attendance officers. Commenting on the dirt and dust brought into the schools, Dr. Glegg suggests the children should change into slippers at school. This is an ideal not easily attained. Favourable comment is made on a dust-allaying preparation, to which a trial has been given. Interesting account is given of the working of the open-air schools, and "the newest schools now in course of construction . . . can, if desired, be thrown open entirely to the fresh air." There are no institutions for the blind, deaf, mentally or physically defective children in the area, but for the great majority of the blind and deaf outside accommodation has been found. The difficulty of providing special schools in rural areas is recognised, but a step in the right direction would be the establishment of special classes at the bigger centres. The adoption of an orthopædic scheme is now being considered. An inquiry into the alleged decadence of the rural child showed that in Lindsey the country child compares favourably with the town child.

ROYAL SOCIETY OF ARTS.—A conference will be held at John-street, Adelphi, W.C., on Monday, Nov. 9th, from 5 to 7 P.M., Sir Francis Champneys in the chair, when the subject for discussion will be How the Midwife can Help in the Reduction of Maternal and Infantile Mortality. The principal speakers include Dr. John S. Fairbairn, Miss E. M. Doubleday, Lieut.-Colonel Fremantle, and Sir John Robertson.

Correspondence.

"Audi alteram partem."

UNIVERSITY COLLEGE, LONDON: A CENTENARY APPEAL.

To the Editor of THE LANCET.

SIR,—May we ask the hospitality of your columns for an appeal issued under the patronage of H.R.H. Prince Arthur of Connaught, and the vice-patronage of the Chancellor of the University of London, the Earl of Rosebery, for £500,000 to enable University College, London, upon the completion of the first hundred years of its work, to start unhampered upon its second century?

The foundation-stone of University College was laid in 1827, after two years of preparatory work following upon the famous letter of Thomas Campbell to the *Times* of Feb. 9th, 1825, in which the foundation of a University of London was first proposed. The object of the new University was to give education without regard to class or creed, and more particularly in a large number of new subjects, which did not at that period form part of the ordinary University curriculum. In the words of an early report: "It was for a class of sciences, the knowledge of which is not profitable to the possessor in a pecuniary point of view, but which exact a great influence on the well-being of society, that such an institution was required."

If this work is to continue, on the scale which the present century demands, a sum of at least £500,000 is urgently necessary. Of this total £225,000 is needed for the endowment of teaching; other urgent needs are the provision of a great hall, the reconstruction and endowment of the libraries, and the completion of the engineering equipment. The laboratory teaching of engineering is one of many subjects in which University College has done pioneer work.

University College was the first of that group of new universities which have now spread, not only through England, but to all parts of the Empire. But, owing to its position as the oldest and largest College of the University of London it must always possess peculiarly heavy obligations and responsibilities. We appeal with confidence to all citizens of London and of the Empire to help it to discharge those obligations in a manner worthy of the Empire in the capital of which it is stationed.

Donations, large or small, can be sent to Sir Robert Kindersley, G.B.E., hon. treasurer of the Centenary Appeal Fund, at University College, London, from whom the complete appeal document can be obtained.

We are, Sir, yours faithfully,

CHELMSFORD,
Chairman, University College, London.

E. A. GARDNER,
Vice-Chancellor, University of London.

MESTON,
Chairman, Appeal Committee.

R. M. KINDERSLEY,
Treasurer, Appeal Committee.

W. SETON,
Hon. Secretary, Appeal Committee.

Gower-street, London, W.C. 1, Oct. 28th, 1925.

X RAYING OF TEETH.

To the Editor of THE LANCET.

SIR,—When a physician of reputation and position writes in criticism of any method of investigation, such a communication naturally commands respect. Sir Gould May criticises the common and routine examination of the teeth by means of X rays, and draws, in my opinion, certain unfair adverse conclusions.

Now if, as he says or implies, it is so easy a matter for a dental surgeon to give a definite opinion on the condition of the teeth, or that part of the tooth which is invisible, why are so increasingly large numbers of dental surgeons going to the expense and trouble of equipping themselves with X ray apparatus? I had been of the opinion that X ray examination was advisable in certain broad classes of case. First, cases referred by the dental surgeon himself, in order to demonstrate with precision the exact condition of a root and its socket; secondly, cases referred by a surgeon, preliminary to any operation of magnitude, in order to eliminate any possible latent source of infection.

In a very large number of such cases, contrary to Sir Gould May's suggestion, the radiologist is able to report favourably. I had looked upon the above as evidence of extreme care on the part of the surgeon, and Sir Gould May's criticism, if correct, is disconcerting. Nevertheless, for my part, I should prefer to be operated upon by a surgeon who errs on the side of extreme caution.

I am, Sir, yours faithfully,

STANLEY MELVILLE.

Chandos-street, Cavendish-square, W., Nov. 2nd, 1925.

To the Editor of THE LANCET.

SIR,—The question raised by Sir Gould May in your last issue is one that, as indeed his letter indicates, concerns not only the general physician and surgeon, but also the specialists in almost every branch of medicine and surgery. An unbiased observer of our profession and its ever-changing doctrines will note that, whenever a new "craze" arises there are always those who support it and those who condemn it as new-fangled nonsense. The former are often to blame for lack of judgment and critical powers, the latter for not taking the trouble to understand the point at issue.

I suppose there is no subject in medicine on which more nonsense has been written and said as on what is commonly known as "the theory of focal infection"! To begin with, it has always been a mystery to me why it should be called a theory. A patient, let us say, has a mass of tuberculous glands in the neck, or a tuberculous focus in one lung; he then develops tuberculide skin lesions, or renal tuberculosis, or spinal caries. It is hardly theoretical to attribute these secondary complications to infection, via the blood stream, from the primary focus. Yet if one is dealing with a patient who is obviously suffering from a non-tuberculous chronic infection, and one tries to locate the main closed foci, from which invasion of the blood stream with toxins or bacteria may be taking place, one is condemned as a victim of "the theory of focal infection"! I cannot personally see any difference between X raying the teeth or the maxillary antra, and having the urine examined for bacilluria, or the Wassermann reaction performed. To my cost, I have in the past accepted the opinion of dental surgeons, whom I did not know, that "the teeth are all right." In one such case I wasted two years of a patient's life for this reason; she had the most extensive apical infection of the teeth with invasion of bone, and I have never seen a more dramatic change in a person's appearance than occurred after removal of the teeth and scraping away the diseased bone. Unfortunately in patients with chronic streptococcal infection it is not, as a rule, a question of locating one or more accessible septic foci, for such cases often have a diffuse infection of the nasopharyngeal and intestinal mucous membranes, to say nothing of closed foci in lymphatic glands. Unless everything possible is done *after* the removal of obvious accessible foci to raise the patient's resistance to his infection by means of an out-of-door existence, heliotherapy, autogenous vaccine treatment, and a suitable diet, disappointment is bound to result in the majority of cases, and such after-treatment is often impracticable. It is the actual infecting organism and the patient's resistance to it that are the important factors, and they are often entirely neglected even by those who admit the

importance of focal sepsis. Sir Gould May's contention that continental medical men do not attribute the same importance to focal infection from the teeth as we do is, in part, true, although the most exhaustive treatises on the effects of pyorrhœa are by French authors. But if we are to be accused of being crazy on this subject, the French can with equal justification be accused of being crazy on hereditary syphilis and tuberculosis.

In conclusion, I would say that the last three reports I have received from dental radiologists stated that there was no evidence of infection of the teeth; and that, even if there is obvious dental sepsis, I do not advise extraction unless I consider the patient's condition warrants it, for artificial teeth can never be an effective substitute for the real article.

I am, Sir, yours faithfully,

H. W. BARBER.

Devonshire-place, W., Nov. 2nd, 1925.

To the Editor of THE LANCET.

SIR,—It would be interesting to know on what experience Sir Gould May bases his remark that "everyone whose apparently sound teeth are X rayed is said to have diseased ones." Simple inspection of a tooth does not reveal the presence of a root abscess, and many sufferers from maladies, undiagnosed by eminent specialists, are relieved when X rays expose a septic focus and an offending molar is removed. Sir Gould May's informant on the continental attitude to this question is in error, for in the Zentral Röntgen Institut in Vienna there is a special section devoted to the study of teeth alone, with results which well satisfy the Viennese doctor. Taking the line of argument adopted by Sir Gould May, it would be just as competent for the radiologist to urge the physician to give up percussing the chest and to relegate his stethoscope to the dustbin. The argument in his case would be even stronger, for physical signs in diseases of the lungs reveal very superficial infiltration, leaving it for the radiologist to discover the more deep-seated mischief. It is not in this way that progress in medicine is made.

I am, Sir, yours faithfully,

PETER KERLEY, M.B., Ch.B. (N.U.I.),
D.M.R & E. Camb.,
Zeugnis der Universität (Vienna).

Richmond, Surrey, Nov. 1st, 1925.

STANDARDISATION OF BACTERIAL VACCINES.

To the Editor of THE LANCET.

SIR,—I am doubtless not alone in welcoming Major Brown's method of making the standardisation of vaccines a more certain procedure as outlined in his letter in your issue of Oct. 31st. Admittedly, the ordinary opacity method such as Gordon's is a rough and ready procedure, but I am sure it does compare quite favourably with any counting method. Apart from cholera vibrios, the opacity is the thing we want, if we cannot have weight, for it is the amount of bacterial substance that matters. Counting methods can take no stock of autolysed organisms, and the standardisation of the streptococcal vaccine by counting methods seems to me to be futile, for in a well-shaken vaccine some of the chains break up into diplo-, triplo-cocci, into chains of all kinds of length, and some cocci autolyse so that one is quite at sea to know what constitutes a single streptococcus. Wherefore in this case an opacity method is probably the more correct, but it may be questioned whether any known method of standardising streptococcal vaccines is satisfactory. The same applies to staphylococcal vaccines, but perhaps not quite so forcibly.

Too much importance should not be attached to *any* vaccine count, for no two patients have the same toleration and no two vaccines have the same toxicity. That fine adjustment which makes for success in vaccine therapy is born of long experience and is a comparatively rare quality, but I am equally sure that some practitioners have an uncanny flair both for choosing the right case for vaccine therapy and for giving the optimum dosage. It will also be noted that for curative specific therapy stock vaccines are of very limited value, since in a mixed vaccine the correct dose of the requisite organism is masked by dilution with other unnecessary organisms, and their inelastic composition is rarely likely to be compatible with any given case.

We owe a great debt to Major Brown for his work in correlating weight and opacity standards.

I am, Sir, yours faithfully,

A. GEOFFREY SHERA, M.D. Cantab.

Welbeck-street, W., Nov. 1st, 1925.

Obituary.

GEORGE HAYNES FOSBROKE, M.R.C.S. ENG., D.P.H.

THE death is announced of Dr. G. H. Fosbroke, medical officer of health for Worcestershire, at Bidford-on-Avon, Warwickshire, after nearly a year's illness.

George Fosbroke was born in 1850 at Bidford-on-Avon, where his family have been known for more than 500 years. He was educated at St. Michael's College, Tenbury, and Swansea Grammar School, and entered Westminster Hospital in 1867. Having become an L.S.A. in 1871 he acted as assistant surgeon to the National Society during the Franco-Prussian War, and for his services was given the war medal by the French Government. He took his M.R.C.S. diploma in 1872, and for two years occupied the posts of resident obstetric physician and resident house physician at Westminster Hospital. In 1873 he returned to his own county as whole-time medical officer of health to the Stratford-on-Avon Combination of Sanitary Authorities, which included Poor-law unions in Worcestershire, and thus became one of a very small number of whole-time officers for groups of sanitary districts. In 1875 he sat for the first examination at Cambridge for the Diploma in Public Health, and in 1881 became President of the Birmingham and Midland Association of Medical Officers of Health. The Worcestershire County Council was one of the first to appoint a county medical officer of health; the decision to do so was not reached without considerable opposition, and meetings of protest were held in a great number of places in the county. The county council was fortunate enough to appoint Dr. Fosbroke as county medical officer in 1890 and with his assistance became one of the most progressive authorities in promoting public health measures. Dr. Fosbroke acted as adviser to the Gloucestershire County Council from 1900–02, and was the representative of the Local Government Board on the London Sanitary Inspectors' Examination Board, and examiner for the Royal Sanitary Institute. In 1902 he was largely instrumental in founding the Knightwick Sanatorium for tuberculosis which, starting with 16 beds, became in 1915 the King Edward VII. County Memorial with 86 beds. Though not a profuse writer, he contributed several articles to professional journals, and his routine reports to the county council contained matter of more than ephemeral interest.

Dr. Fosbroke's quiet and unassuming manner of overcoming difficulties and prejudices bore fruit in much valuable work for his county. His friendly relations with his colleagues in general practice in days when friction was common was shown by his election as president of the Worcestershire and Herefordshire branch of the B.M.A. in 1894. As a man few were more welcome in any sphere of life. He was a keen sportsman, and until prevented by an accident was well known to followers of three Midland packs of foxhounds as a hard rider. In 1887 he married Miss Mary Thorpe Lane, of Dorsington Manor, Gloucestershire, but he has left no children.

NINA HENRIETTA BEATH, M.B., CH.B. EDIN.

THE death of Miss Nina Beath in London on Oct. 27th follows rapidly on her return from her work for the Presbyterian Church of England at the Women's Hospital, Swatow, China. She had been unwell for some months, but only gave up her arduous duties at the hospital at the beginning of June and reached London on Oct. 3rd. The daughter of the late Lieut.-Colonel John Henry Beath, C.B., R.A.M.C., she was born at Stirling in 1872, and after taking her degrees at Edinburgh in 1902 she went out to Swatow two years later. Her death deprives the English Presbyterian Missions in China of their leading woman member. In addition to her hospital duties she trained many Chinese students of medicine, employing for the purpose their own language, of which she was a master. She was also as active as her medical duties would allow her to be in the evangelistic work of the missions, and often preached to large gatherings of women and children.

Medical News.

UNIVERSITY OF LONDON: *University College Hospital.*—Four lectures on the History of Medicine, illustrated by lantern slides, will be delivered at University College Hospital Medical School by Dr. Charles Singer on Thursdays at 4.15 P.M., from Nov. 12th to Dec. 3rd. The subjects will be the History of Influenza, Diphtheria, Enteric Fever, and Small-pox, and the lectures will be open to all medical students of the University of London.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary quarterly Comitia of the College was held on Oct. 29th, the President, Sir Humphry Rolleston, occupying the chair. The following candidates having passed the necessary examinations were admitted as Members of the College:—

Drs. William F. Addey, Harold G. Anderson, Tridib Nath Bandgopadhyay, Ambuj Nath Bose, Reginald T. Brain, Oscar Brenner, Frederick J. H. Campbell, Weldon D. Champneys, Samuel H. Cookson, Gerard J. Crawford, Thomas H. Crozier, Cyril L. Elgood, Rowland B. Fawkes, Louis Forman, William I. Gerrard, Paul C. Gibson, Francis H. K. Green, Geoffrey Hadfield, Frederick W. Hamilton, Richard A. Hickling, Ronald E. Lane, Edward B. Marsh, James Maxwell, Alan A. Moncrieff, Benjamin B. Morgan, Milroy A. Paul, Wilfred P. H. Sheldon, John F. Smith, Norman W. Snell, Frederick H. W. Tozer, Francis C. O. Valentine, Richard H. Wade, George F. Walker, and Adam White.

Licences to practise physic were granted to 211 candidates (including 36 women) who had passed the necessary examinations. The following are the names and medical schools of the successful candidates:—

A. R. Adderley, St. Thomas's; R. D. Aiyar, Madras and London; V. M. Albuquerque, King's Coll.; C. R. Alderson, Univ. Coll.; R. B. Alston and R. C. Amies, St. Thomas's; Leah Appell, Charing Cross; H. K. Ashworth, Manchester; A. A. Atkins, London; D. G. Balakirsky, Liege and Middlesex; C. V. N. Baldry, Sydney and St. George's; W. A. Ball, King's Coll.; K. Bandaly, Univ. Coll.; J. V. Bannehr, St. Bart.'s; T. F. Barlow, London; J. M. Bassett, Edinburgh; J. R. Beal, Manchester; A. D. Belillos, St. Thomas's; H. S. Bell, Liverpool; W. T. E. Blackmore, Cardiff and London; Kathleen Blake, King's Coll.; V. H. Brink, Oxford and London; J. M. Brodrick, Liverpool; G. P. Brooks and W. Buckley, London; Margaret A. L. Buckner, Univ. Coll.; Olive K. Burnett, Royal Free; Isabella M. G. Butler, Univ. Coll.; J. P. Carpenter, Birmingham; Fanny L. Cattle, Univ. Coll.; R. T. Chadwick, Cambridge and St. Bart.'s; W. S. Chapman, Univ. Coll.; Dorothy A. Chown, Royal Free and St. Mary's; L. M. Clark and C. D. Cogswell, King's Coll.; R. Collins, Leeds; A. N. Coomarasamy, Madras and London; P. F. S. Court, Guy's; Anne A. Craig, Royal Free; P. E. J. Cutting, St. Bart.'s; A. J. Daly, London; A. C. Dalzell, King's Coll.; S. W. Davies, Cardiff; G. Dietrich, St. Bart.'s; J. Dockray, Cambridge and St. Bart.'s; W. H. Dowell, Guy's; Muriel E. Drew, Bristol; J. J. F. Dunn, Calcutta and St. Mary's; Dorothy Durance, Royal Free; J. Y. Eccles, St. Thomas's; N. L. Edwards, Manchester; A. Elliott, Guy's; Norah A. M. Empson, King's Coll.; Brenda H. English, Royal Free; I. A. Evans, Cardiff and Manchester; O. F. Farndon and R. R. Fells, St. Bart.'s; S. J. Firth, Manchester; P. H. Flockton, St. Bart.'s; A. C. Gairdner, Oxford and London; S. E. Gawthrop, Cambridge and Durham; H. Geary, Manchester and Guy's; J. F. E. Gillam, St. Thomas's; B. M. C. Gilsenan, St. Bart.'s; G. N. Golden, London; J. G. Goodman, Guy's; M. Gottfried, St. Mary's; E. P. Gough, Cambridge and St. Bart.'s; Phyllis M. Grainger, Birmingham; H. W. Greenwood, Middlesex; Margaret H. Greg, Royal Free and Manchester; G. J. Gregerson, Adelaide and London; J. C. P. Grey, Cambridge and St. Thomas's; H. R. Griffin, Middlesex; Sarah P. M. Griffiths, Cardiff and Westminster; T. A. Griffiths, Liverpool; W. S. Grove, Cambridge and Guy's; L. J. Haydon, Cambridge and St. George's; A. B. Hewlett, King's Coll.; J. D. Hindley-Smith, Cambridge and St. George's; J. C. Hogg, Cambridge and St. Bart.'s; D. P. Holmes, Westminster; L. Holmes, St. Bart.'s; T. K. Homer and J. P. Huins, Birmingham; Ruth T. Hurnard Royal Free; D. S. Jackson, Madras and St. Mary's; I. A. Jackson, Cambridge and Guy's; Isabel E. S. James, King's Coll; R. Jones, Cardiff and Charing Cross; Adele A. Kahan, Charing Cross; M. E. Lampard, Cambridge and King's Coll.; I. Landon, St. Bart.'s; D. M. Lang, Guy's; C. G. Le Couilliard, Middlesex; A. H. Levers, Cardiff and Westminster; H. M. Levy, Middlesex; S. Levy-Simpson, Cambridge and London; R. Lewthwaite, Middlesex; D. W. E. Lloyd, Guy's; Mary C. Luff and Joan L. Lush, Univ. Coll.; J. D. S. McGeoch, Birmingham; B. W. S. Mackenzie, Cambridge and Univ. Coll.; W. K. McKinstry, Cambridge and St. Bart.'s; S. B. Malik, Punjab and Charing Cross; Margaret C. Malone, King's Coll.; C. Marian, Univ. Coll.; R. Marnham, Cambridge and St. George's; R. G. Mathews, Oxford and Univ. Coll.; R. C. May, Guy's; K. V. Mead, St. Thomas's; J. A. A. Mekelburg, Cape and Guy's; Clara Mendelssohn, Westminster; R. D. Milford, Cambridge and St. George's; Mary A. Monro, Royal Free; D. G. Morgan, Cardiff; Gertrude M. E. Morgan, Cambridge and St. Mary's; W. S. Morgan, Cardiff and St. Bart.'s; G. C. Morris, St. Mary's; Una F. M. Morton, Univ. Coll.; W. Murphy, Leeds; R. G. Nethery and F. M. Newnham, Guy's; H. A. Nicholls, St. Bart.'s; G. A. H. Norman, Westminster; D. W. C. Northfield, Guy's; H. E. Nourse, Cambridge and Middlesex; Eileen A. Nugent, Royal Free; T. C. Oakley, Birmingham; M. Odess, St. Mary's; D. Oliver, St. George's; C. J. S. O'Malley, St. Thomas's; A. Orliansky, Geneva and Middlesex; Sharada G. Pandit, Bombay; C. F. Parry, Cardiff and Guy's; F. B. Parsons, Cambridge and St. Bart.'s; G. Paterson, St. Thomas's; H. L. Peake, Guy's; L. V. Pearson, Cambridge and St. Bart.'s; B. Perchman, Charing Cross; J. D. L. Perera, Ceylon and London; D. Plum, St. Thomas's; C. G. E. Plumstead, Cambridge and St. Georges; F. H. Pratt, Guy's; J. D. Procter, Cambridge and Univ. Coll.; W. E. H. Quennell, St. Bart.'s; R. L. Quilliam, King's Coll.; R. J. Rankin, Cardiff and St. Bart.'s; J. D. Rear, Guy's; L. D. Richards, Charing Cross; K. E. R. Robertson, Calcutta and St. Mary's; P. H. Rossier, Lausanne and Zurich; C. J. Rozario, Calcutta and St. Thomas's; E. J. Rubra, Westminster; N. L. Russell, St. George's; I. J. Sachs, Middlesex; K. G. Salmon, Cambridge and St. Bart.'s; J. N. Sankey, Birmingham; Ethel M. Sargant, Cambridge and St. Mary's; A. G. Schroeder, Adelaide and London; C. R. Sclous Jones, Cambridge and St. Thomas's; E. M. Shackel, Cambridge and St. Thomas's; J. W. Shackle, Cambridge and Guy's; Sara C. A. Sharpe, Royal Free and St. Mary's; J. Silverstone, Westminster; T. St.J. H. Silvester, Guy's; H. Simmonds, St. Bart.'s; G. Simon, Cambridge and St. Bart.'s; E. M. Smith, Univ. Coll.; K. S. Smith, Middlesex; R. E. Smith and E. Sorabjee, Guy's; J. Spencer, St. Bart.'s; A. L. Stephen and I. H. K. Stevens, Univ. Coll.; Gertrude H. C. Stinson, Royal Free; Mary Stirk, Manchester, R. G. Strouts, London; B. R. Sworn and C. C. Taffs, St. Thomas's; G. K. Taylor, Cambridge and St. George's; S. P. Taylor, Bristol; Elizabeth L. Taylor-Jones, Royal Free; G. A. J. Teasdale, Middlesex; E. J. S. Topham, Cambridge and St. Bart.'s; Mary C. Tugman, St. Mary's; A. B. W. Van Zyl, Amsterdam and Middlesex; W. A. Vickers, Liverpool; D. Vidofski, London; J. Viljoen, Cape and Manchester; R. J. Vince, Cambridge and London; D. C. Virmani, Lahore and Charing Cross; I. N. Vitenson, London; Florence M. Wallen, Cardiff; W. F. Waudby-Smith, St. Bart.'s; J. K. G. Way, Guy's; R. Wear, Durham; Elizabeth M. Weideman, St. Mary's; P. Weiner, King's Coll.; A. S. Wesson, Univ. Coll.; Joyce E. M. White, Royal Free and London; J. D. V. Wijeyaratne, Ceylon and King's Coll.; D. P. Williams, Middlesex and Cardiff; T. I. Williams, Guy's; H. L. Wilson, St. Bart.'s; H. F. Wilson, London; F. G. Winterton, Cambridge and St. Bart.'s; J. T. Woodhead, Cambridge and St. George's; A. T. Worthington, Cambridge and St. Bart.'s; and E. W. C. Woutersz, Calcutta and St. Mary's.

Dr. J. A. Nixon, of Bristol, was elected an Examiner in Medicine, to serve until July, 1927, in the place of Dr. J. W. Russell, of Birmingham, deceased.—A report was received from the President of the College who had attended the International Prison Congress as delegate.—The alterations in the by-laws relating to the examinations for the Membership were read a second time and passed. These include a provision designed to meet the case of medical men who have been engaged in special branches of practice lying outside the direct course of clinical medicine. Those over 30 will now be permitted to submit work they have published in any branch of medical science or in general literature, and if the Censors' Board decide that it is of sufficient merit they may excuse the candidate part or the whole of the examination. Another concession permits a referred candidate, in the absence of any special prohibition by the Censors' Board, to submit himself for re-examination without waiting for the expiration of six months, as has hitherto been the case. [A reference to these changes appears in our editorial columns.]—A letter from Dr. Daniel O'Connell Finigan asking that the Membership which he resigned in 1912 may be restored to him, was read a second time. The application was granted.—A report was received

from the Committee of Management.—Dr. R. A. Young was re-elected a member of the Committee of Management.—The President announced the award of the Streatfeild Scholarship to Norman Leslie Capener, F.R.C.S., whose subject of research was "The Comparative Anatomy and Function of the Prostate Gland," and the award of the Jenks Scholarship for 1925 to Oliver Ive, of Guy's Hospital Medical School and formerly of Epsom College.—The award, by the University of Edinburgh, of the Murchison Scholarship for 1925 to Miss Sidney Elizabeth Croskery was also announced.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held during last month the following candidates passed in the subjects indicated :—

Surgery.—R. F. Ashkenny, London Hosp.; A. O. Dreosti, St. George's Hosp.; C. L. Froehlich, Guy's Hosp.; E. J. Newman, London Hosp.; M. Pettigrew, Sheffield; M. V. Roberts, London Hosp.; G. E. Rowan, St. Thomas's Hosp.; P. B. Skeels, Guy's Hosp.; J. Tarshish, Liverpool; M. E. G. Wilkinson, Bristol; and H. J. F. Wood, Guy's Hosp.

Medicine.—M. Bannounah, Guy's Hosp.; A. O. Dreosti, St. George's Hosp.; A. M. El Mishad, Guy's Hosp.; A. L. Evans, Cambridge and London Hosp; C. L. Froehlich, Guy's Hosp.; T. H. Harrison, Sheffield; M. Hook, Boston, U.S.A.; N. H. Ibrahim, Durham; F. G. Martin, Charing Cross Hosp.; P. B. P. Mellows, St. Bart.'s Hosp.; E. J. Newman, London Hosp.; E. H. Rampling, St. Thomas's Hosp.; F. Reynolds, Manchester; L. A. Rostant, St. Thomas's Hosp.; G. H. Shanley, Durham; and J. Tarshish, Liverpool.

Forensic Medicine.—A. F. Brigimen, Edinburgh; V. G. Crowley, Sydney and St. George's Hosp.; A. O. Dreosti, St. George's Hosp.; A. L. Evans, Cambridge and London Hosp.; W. O. H. Evans, Bristol; N. H. Ibrahim, Durham; F. G. Martin and K. G. B. McMahon, Charing Cross Hosp.; F. Reynolds, Manchester; G. H. Shanley, Durham; M. E. G. Wilkinson, Bristol; F. Winelake, Bern; and H. J. F. Wood, Guy's Hosp.

Midwifery.—J. H. Clapp, London Hosp.; T. K. Clifford, Manchester; S. W. Cuff, St. Bart.'s Hosp.; A. O. Dreosti, St. George's Hosp.; M. Hook, Boston, U.S.A.; E. P. Hyde, Manchester; E. J. Jones, Middlesex Hosp.; P. H. L. Moore, Sydney and St. George's Hosp.; T. C. Pain, Guy's Hosp.; F. Reynolds and J. B. Scarr, Manchester; and H. J. F. Wood, Guy's Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: J. H. Clapp, S. W. Cuff, A. O. Dreosti, A. L. Evans, T. H. Harrison, E. P. Hyde, N. H. Ibrahim, E. J. Newman, F. Reynolds, M. V. Roberts, G. H. Shanley, P. B. Skeels, M. E. G. Wilkinson, F. Winelake, and H. J. F. Wood.

HUNTERIAN SOCIETY.—A meeting will be held at the Cutlers' Hall, Warwick-lane, London, E.C., on Nov. 9th, at 8.45 P.M., at which there will be a discussion on the Relation of Spiritual Healing to Modern Medicine. Amongst those who have promised to take part are the Bishop of Kensington, Rev. Canon Douglas, Rev. Mr. Anson, Dr. F. G. Crookshank, Dr. Edwin Ash, and Dr. M. P. Leahy. Fellows are reminded that they may bring non-medical guests to this meeting.

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The forty-third meeting of the Commission was held at the Home Office, Whitehall, on Oct. 29th, Sir Arthur Worley, and later Lord Lawrence of Kingsgate in the chair. Evidence was given by Mr. A. B. Maclachlan and Mr. H. W. S. Francis, assistant secretaries, Ministry of Health, as to the public provision of health services outside the insurance scheme and the relations of these to the medical benefit arrangements. Thereafter further evidence on the general provisions of the insurance scheme was given by Sir Walter Kinnear, Mr. L. G. Brock, Dr. Smith Whitaker, of the Ministry of Health, and by Sir James Leishman and Mr. G. Wight, of the Scottish Board of Health. The Commission announce that Volume III. of the Minutes of Evidence (twenty-fourth to thirty-fourth days) and Part III. of the Statements of Evidence (Appendices XL. to LXXVI.) are now on sale in final form at H.M. Stationery Office, price 10*s.* and 10*s.* 6*d.* respectively, postage extra.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Dr. F. J. Poynton will lecture on Monday, Nov. 9th, at 5.30 P.M., in the Lecture Hall of the Medical Society of London, 11, Chandos-street, W. His subject will be Some Points in the Diagnosis of Tuberculosis in the Child, and all members of the medical profession will be welcome.—There is now in progress a course on Gynæcology at the Chelsea Hospital for Women, and on Venereal Diseases at the London Lock Hospital. The former will continue until Nov. 20th and the latter until the end of the month.—Dr. Porter Phillips and Dr. Thomas Beaton began a series of eight lecture-demonstrations on Psychological Medicine at the Bethlem Royal Hospital on Nov. 3rd, for which the fee is £1 1*s.*—At the Victoria Park Hospital a two weeks' course has been arranged from Nov. 9th to the 21st. Clinical instruction and lecture-demonstrations on the Various Diseases of the Chest will be given.—From Nov. 23rd to Dec. 12th the Royal Waterloo Hospital will hold a course in Medicine, Surgery, and Gynæcology.—For the convenience of the general practitioner, the London Temperance Hospital will give a late afternoon course (4.30 to 6 o'clock) in General Subjects from Nov. 23rd to Dec. 4th.—A course dealing with the Diagnosis and Treatment of Nervous Diseases will take place at the West End Hospital (73, Welbeck-street) from Nov. 23rd to Dec. 12th.—Copies of each syllabus, and also the general course programme, may be obtained from the Secretary to the Fellowship at 1, Wimpole-street, London, W. 1.

PHARMACEUTICAL SOCIETY.—A meeting will be held in the lecture theatre of the society's house on Tuesday, Nov. 10th, at 8 P.M., at which Lieut.-Colonel Sir David Prain, formerly director of Royal Botanic Gardens, Kew, will lecture on Some Useful Plants of India. Medical friends of members and student-associates will be cordially welcomed.

ST. THOMAS'S HOSPITAL MASSAGE DEPARTMENT.—A series of lecture-demonstrations are being given in this department on Tuesday afternoons at 4.30 P.M. by Dr. James Mennell. On Nov. 10th and 17th the subjects will be: Forced Movement—"Bone-setting" Manipulations—"Osteopathic" Manipulation.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting will be held at the Miller General Hospital, Greenwich, London, S.E., on Friday, Nov. 13th, at 8.45 P.M. The President, Dr. Arthur Davies, will occupy the chair, and a lecture will be given by Dr. W. Gilliatt on Eclampsia.

ABERDEEN UNIVERSITY CLUB, LONDON.—The bi-annual dinner is to be held at the Criterion Restaurant, Piccadilly, on Thursday, Nov. 19th, at 7.30 P.M., when Prof. H. M. Macdonald will take the chair. The guest of the evening will be Sir Humphry Rolleston, and Dr. W. A. Milligan, 11, Upper Brook-street, W. 1, will be glad to hear from any graduates (past or present) wishing to attend the dinner or join the club.

ROYAL DENTAL HOSPITAL OF LONDON, SCHOOL OF DENTAL SURGERY.—The annual dinner of the staff and past and present students of the hospital will be held at 6.30 for 7 P.M. on Saturday, Nov. 21st, at the Trocadero Restaurant, Piccadilly, London, Mr. W. H. Dolamore in the chair. On the afternoon of the same day the medical committee will be "At Home" from 2 to 5 o'clock to all past and present students of the hospital, when the various departments of the hospital and school will be open, and specimens and cases of interest shown by the members of the staff and lecturers. Medical practitioners are invited to be present.

ST. THOMAS'S HOSPITAL DINNER.—About 190 old students of St. Thomas's Hospital attended the annual dinner held at the Hotel Victoria on Oct. 30th. Mr. Samuel Osborn was chairman, and amongst those present were Sir Arthur Stanley (treasurer), Sir Cuthbert Wallace (Dean of the medical school and senior surgeon), Dr. C. R. Box, Lord Riddell, Lieut.-General Sir William Leishman, Air Vice-Marshal D. Munro, Sir George Makins, Sir Richard Havelock Charles, Sir Hector Mackenzie, and Sir Harold Downer. After dinner the Chairman proposed the health of the "Hospital and Medical School" in a speech full of interesting reminiscence. It was 57 years, he said, since he joined the hospital, and he believed that with the exception of General W. B. Slaughter he was the oldest old student that remained; he was certainly the first house physician in the new buildings and the last accoucheur at Surrey Gardens. Sir Arthur Stanley said that it was the duty of those who, like Mr. Osborn, had a store of information about the past to put it on record for the future. Small facts, like small articles of furniture, were only too easily lost. The life of hospital treasurers, he said, was increasingly difficult. In the old days a man coming into hospital with a bad foot was treated for a bad foot; but now he had his stomach X rayed and probably his teeth were removed. All this made for expense. Sir Arthur Stanley ended by referring to the new club and hostel which are being put up as a war memorial. Sir Cuthbert Wallace stated that there were 454 students at the school and hospital during the year; to provide for the education of these cost £30,000 a year, and but for the Government's grant of over £10,000 there would be a heavy deficit, no matter what economy was used. After speaking of those old students who had died during the year, Sir Cuthbert Wallace mentioned the distinctions that had been gained and athletic successes. The O.T.C. had won the cup given for the most efficient medical unit. Sir George Makins, speaking of the war memorial, thought it was very appropriate, and paid a tribute to the treasurer, the governors, and staff for the work which had made the memorial possible. In proposing the health of the Chairman, Sir George Makins said that Mr. Osborn had been one of the first anæsthetists to the hospital. In those

days it was a much more serious thing to be an anæsthetist and the anxiety involved was enormously increased by the anxiety of the surgeon. Mr. Osborn had educated the British public up to knowing a certain amount of first-aid and to being able to help themselves, and not the British public only, since it was doubtful if any book except the Bible had been translated into as many languages as Mr. Osborn's. He had also won distinction as a medical practitioner in several wars and was a great traveller. After the Chairman had suitably replied there was an opportunity for informal conversation.

BRITISH SERBIAN UNITS BRANCH OF THE BRITISH LEGION.—This branch is holding its annual dinner at Anderton's Hotel, Fleet-street, on Thursday, Dec. 10th, and all who worked for the Serbians, and their friends, are invited. The chairman will be Sir James Purves-Stewart, and tickets, price 7*s.* 6*d.* each, may be obtained from the hon. secretary, Oxford House, Junction-road, London, N. 19.

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY.—A special meeting of this society to discuss the treatment of rheumatism in industry is to be held—jointly with the Section of Balneology and Climatology of the Royal Society of Medicine—on Friday, Nov. 27th, at 10 A.M., in the Barnes Hall, Royal Society of Medicine, 1, Wimpole-street, London, W. The President, Dr. Gustave Monod (France), will occupy the chair, and the following are expected to take part in the discussion: Sir George Newman, Dr. Van Breemen (Director of the Institute for Physical Treatment, Amsterdam), Dr. Frank Kornmann (Switzerland), Dr. Kahlmeter (consultant to the Direction des Pensions de Retraite, Stockholm), Dr. Louis Blanc (France), Dr. Schmidt (Czecho-Slovakia), Dr. R. G. Llewellyn, Dr. Otto May, Dr. Matthew Ray, Dr. Kerr Pringle, Dr. C. W. Buckley, and Dr. Fortescue Fox. Members proposing to attend are asked to reply as soon as possible to Dr. E. P. Poulton, 36, Devonshire-place, London, W. 1.

NATIONAL COUNCIL FOR MENTAL HYGIENE.—A meeting of the Council was held on Nov. 2nd at the House of the Royal Society of Medicine at which Sir Courtauld Thomson took the chair. Lord Birkenhead said that the object of the Council was to educate public opinion so that it should get away from the idea of incarceration and should regard institutions for mental diseases as hospitals. Sir Maurice Craig spoke of the difficulty of inducing the public to subscribe funds for the prevention of disease. "The British public," he said, "will do anything to try to cure disease, but will do nothing to prevent it." In dealing with insanity large sums were spent in housing patients who would never have got into their sad condition if early treatment had been available. A more enlightened attitude towards mental disorder was essential and the Council was trying to collect and disseminate evidence. Dr. W. A. Potts said that magistrates seemed to imagine that they could diagnose mental defect, though they would never borrow a stethoscope to try to diagnose heart trouble. He pleaded for fuller education of the medical profession on mental disease. Lord Southborough said that there were practically no facilities for early treatment so far as the vast majority of the population was concerned.

LIVERPOOL MEDICAL INSTITUTION.—At a meeting held on Oct. 29th, Mr. R. Craig Dun, the President, being in the chair, Mr. John T. Morrison read a short paper on the Surgery of the Lung. He outlined the difficulties met with in experimental work and the controversy between Graham and Duval as to the physics of the chest with a wide open pneumothorax. He then described his own experiences in performing partial and complete pneumectomies in rabbits, using ordinary open ether anæsthesia. When the whole lung was removed the animals always died, apparently as the result of the trauma to the pulmonary root, since death could always be prevented by section or blockage of the vagus in the neck. No case of sepsis had occurred although the lung pedicle was merely crushed and tied with 10-day catgut. The difference between the sterile bronchi in rabbits and the infected bronchi in man in disease was pointed out and some of the methods referred to by which the risk of sepsis from this source could be minimised. Mr. Morrison then described the gross and histological changes that occurred after total pneumectomy, alluding to the altered contour of the chest, the hypertrophy of the heart, and the twofold changes in the lung; in some emphysema, in others mainly an intense congestion. After a review of the outstanding achievements in pulmonary surgery Mr. Morrison appealed for more frequent recourse to exploratory thoracotomy, a simple and more effective operation than exploratory laparotomy. Such exploration would disclose cases amenable to surgical treatment and, more important still, lead to a knowledge of the pathology of the living chest, analogous to that which had revolutionised the treatment of alimentary diseases.

Sir William Collins has been appointed Vice-Lieutenant of the County of London.

THE meetings of the Royal Commission on Lunacy and Mental Disorder are to be resumed on Nov. 10th, at 10.30 A.M., at 1, Whitehall-gardens, S.W.

Mr. W. H. Cruickshank has been appointed Professor of Physiology in the Prince of Wales Medical College, Patna, India.

Councillor Dr. W. James Susman has been elected as Mayor for the borough of Henley-on-Thames for the ensuing year.

PIONEERS IN TROPICAL MEDICINE.—Dr. Andrew Balfour's presidential address to the Royal Society of Tropical Medicine and Hygiene will appear, fully illustrated, in the next issue of the Transactions of the society.

SHEFFIELD MEDICAL DINNER.—The annual dinner will be held in the Royal Victoria Hotel at 7.30 P.M. on Thursday, Nov. 12th. Applications for tickets (12*s.* 6*d.*) should be made to the hon. secretary, Dr. J. Eric Stacey, 2, Durham-road, Sheffield.

CHILD-STUDY SOCIETY.—A lecture on the Development of Speech in the Normal Child will be delivered on Nov. 12th, at 6 P.M., by Mr. Macleod Yearsley, at 90, Buckingham Palace-road, London, S.W., Dr. James Kerr presiding.

THE MINISTER OF HEALTH AT HALIFAX.—Mr. Neville Chamberlain visited Halifax on Oct. 26th, and after inspecting several institutions devoted to women's welfare, opened a workshop for the blind at the Hostel of the Halifax Society for the Blind. The workshop, like the hostel, has been built under a £10,000 legacy from the late Mr. J. W. Horsfall. Mr. Chamberlain said that blindness was mostly due not to accident, but to causes which in a perfect state of society should not occur. Referring to smoke in Halifax, he said that he hoped to introduce a new Smoke Abatement Bill in Parliament in the coming year. It did not do to rely exclusively on the central authority for the control of smoke, and his object was to promote partnership between local and central authorities for this matter.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Monday, Nov. 9th.

WAR: at 5 P.M.
Paper:
Wing-Commander E. C. Clements, R.A.F.: Visual Problems and their Relation to Flying and Industrial Fatigue from the Service Standpoint.

Tuesday, Nov. 10th.

THERAPEUTICS AND PHARMACOLOGY: at 5 P.M.
Discussion on
The Influence of the Ovary on Parturition.
Other Speakers:
Mr. F. M. A. Marshall, Dr. Langdon Brown, Dr. Wilfred Shaw.

OBSTETRICS AND GYNÆCOLOGY:
Members of this Section are particularly invited to attend above Meeting.

PSYCHIATRY: at 8.30 P.M.
Presidential Address:
Dr. R. H. Cole: The Progress of Psychiatry.

Wednesday, Nov. 11th.

SURGERY: SUBSECTION OF PROCTOLOGY: at 5.30 P.M.
Presidential Address:
Mr. G. Grey Turner: The Relationship of Proctology to Greater Medicine.
A discussion will follow.
There will be a demonstration of pathological specimens.

Thursday, Nov. 12th.

TROPICAL DISEASES AND PARASITOLOGY: at 5.30 P.M.
Presidential Address:
Sir William T. Prout: Medical Conditions in Tropical Countries.
Paper:
Dr. Aldo Castellani: Typhoid and Paratyphoid-like Fevers caused by Organisms which Differ from *B. typhosus* and *B. paratyphosus* A, B, C.
Specimens:
Dr. Arthur Powell: Specimen of the Spirochæte of Rat-bite Fever from Bombay (*Treponema morsus muris*).
Dr. S. Roodhouse Gloyne: Specimen of *Tænia cœnurus serialis*.

MEDICINE:
Members of this Section are cordially invited.

NEUROLOGY: at 8.30 P.M.
Joint Paper:
Dr. Wilfred Harris and Dr. W. D. Newcomb: On a Case of Glioma of the Pons, with Special Reference to its Bearings on the Physiology of the Fifth Cranial Nerve.

Friday, Nov. 13th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases and Specimens:
Dr. J. H. Sheldon: Multiple Myelomatosis.
Dr. Bernard Myers: Amyotonia Congenita.
Dr. B. T. Parsons-Smith: Intrapericardial Aneurysm of Aorta.
Mr. J. D. Driberg: (1) Axillary Tumour; (2) Case for Diagnosis.
Dr. J. F. Halls Dally: Hyperpiesia and Demonstration of a New Mercurial Blood Pressure Instrument.
Dr. L. S. T. Burrell: Bronchiectasis and Cerebellar Abscess.
Dr. F. E. Saxby Willis: Specimen showing Primary Carcinoma of Left Bronchus.
Dr. E. Stolkind: (1) Case of Hypopituitarism. (2) Case of Polycythæmia Vera treated by X rays. (3) Description of Case of Fatal Medinal Poisoning.

OPHTHALMOLOGY } at 8.30 P.M. (Cases at 8 P.M.)
SURGERY }
Joint Discussion on
Plastic Operations on the Face in the Region of the Eye.
The following have promised to take part:—
Mr. H. S. Souttar, Mr. G. H. Pooley, Mr. Kilner, Mr. Percival Cole, Mr. Ormond, Mr. Shaw, Mr. Edmunds, Mr. M. W. B. Oliver.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Nov. 9th.—8.30 P.M., Discussion on Obscure Pyrexia in Childhood, to be introduced by Dr. Robert Hutchison, followed by Dr. Wilfred Pearson, Prof. F. S. Langmead, and others.

HARVEIAN SOCIETY OF LONDON.
THURSDAY, Nov. 12th.—8.30 P.M. (at the Paddington Town Hall, Paddington Green, W.), Dr. J. D. Rolleston: The Differential Diagnosis of Scarlet Fever and Diphtheria, and the Modern Methods of Treatment and Prophylaxis, followed by a discussion.

THE BIOCHEMICAL SOCIETY.
MONDAY, Nov. 9th.—5 P.M. (at King's College, W.C.).
Communications: J. A. Hewitt and H. G. Reeves: Tautomerism of Glyceric Aldehyde; J. A. Hewitt and H. G. Reeves: Constitution of Glyceric Aldehyde: C. Lovatt Evans: Lactic Acid Formation in Plain Muscle: Elizabeth S. Semmens: The Hydrolysis of Starch in the Guard Cells of the Stomata of a Monocotyledon; J. Gordon, J. W. McLeod, and B. Wheatley: The Importance for the Bacteriologist of Differentiating between the Amino-Acids which Favour and those which Inhibit Bacterial Growth; J. R. Marrack and G. D. Thacker: The Influence of Ionic Strength on the Equilibrium of Calcium-ion in Bicarbonate Solutions.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.
TUESDAY, Nov. 10th.—5 P.M., Dr. A. Shadwell: Medicine in Ancient Egypt, Assyria, and Palestine. (First FitzPatrick Lecture.)
THURSDAY.—5 P.M., Last FitzPatrick Lecture.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
WEDNESDAY, Nov. 11th.—5 P.M., Mr. James Sherren: Gastro-jejunostomy.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Nov. 9th, to SATURDAY, Nov. 14th.—Fellowship of Medicine Lecture, Medical Society, 11, Chandos-street, W. Mon., 5.30 P.M., Dr. F. John Poynton: Some Points in the Diagnosis of Tuberculosis in the Child.—BETHLEM ROYAL HOSPITAL, Lambeth, S.E., Tues., 11 A.M., Dr. Porter Phillips: The Diagnosis and Symptomatology of Mental Diseases. Sat., 11 A.M., Dr. Thomas Beaton: Psycho-neuroses.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Post-graduate course in Gynæcology, lectures, and demonstrations daily. Pathology and operations.—LONDON LOCK HOSPITAL, Dean-street. Comprehensive course. Instruction in the Out-patient Department and Lectures.—CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E. Post-graduate course in Diseases of the Heart and Lungs. Lectures, clinical demonstrations, and laboratory demonstrations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
THURSDAY, Nov. 12th.—3 P.M., Demonstration: Dr. J. Browning Alexander: Blood Pressure Investigations. 4.30 P.M., Lecture: Mr. J. Howell Evans: A Plea for Less Mutilating Operations in Carcinoma.
Daily: Clinics and Demonstrations in the Wards and various Out-patient Departments, Operations, &c.

UNIVERSITY COLLEGE, London.
WEDNESDAY, Nov. 11th.—5.30 P.M., Prof. G. Elliot Smith and Dr. John Beattie: The Evolution of Man. (First of six Public Lectures.)

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
TUESDAY, Nov. 10th.—5 P.M., Dr. H. MacCormac: Diseases due to Animal Parasites.
THURSDAY.—5 P.M., Dr. A. C. Roxburgh: Urticaria.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, ST. ANDREWS.
TUESDAY, Nov. 10th.—4 P.M., Dr. A. Hynd: The Estimation of Blood-Sugar.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.
THURSDAY, Nov. 12th.—5 P.M., Mr. T. Stevens: Meddlesome Midwifery.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: OCTOBER-NOVEMBER, 1925.
CLINICAL LECTURES AND DEMONSTRATIONS.
MONDAY, Nov. 9th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Tremor and Incoördination: Dr. Risien Russell.
TUESDAY, Nov. 10th.—2 P.M., Out-patient Clinic: Dr. Walshe. 3.30 P.M., Peripheral Neuritis: Dr. Grainger Stewart.
THURSDAY, Nov. 12th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Hemiplegia: Dr. Walshe.
FRIDAY, Nov. 13th.—2 P.M., Out-patient Clinic: Dr. Adie. 3.30 P.M., Electro-therapy in Lesions of Peripheral Nerves: Dr. Bailey.
The fee for the Course, including Pathology Lectures, is £5 5s. For those who hold Perpetual Tickets the fee is £3 3s.
COURSE OF LECTURES AND DEMONSTRATIONS ON THE PATHOLOGY OF THE NERVOUS SYSTEM.
THURSDAY, Nov. 12th.—12 noon, Subacute Inflammation: Dr. J. G. Greenfield.
COURSE OF LECTURES AND DEMONSTRATIONS ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.
MONDAY, Nov. 9th.—12 noon, Reflex Action as a Whole: Dr. J. L. Birley.
Dr. H. J. Macbride is giving a COURSE of EIGHT CLINICAL DEMONSTRATIONS, chiefly on METHODS OF EXAMINATION OF THE NERVOUS SYSTEM in the Wards at 10 A.M. on Tuesdays and Fridays. The fee for this Course is £2 2s.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.
Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.
J. G. GREENFIELD, Dean of Medical School.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Nov. 10th.—4.15 P.M., Mr. J. Morley: Shoulder Tip Pain.
FRIDAY.—4.15 P.M., Prof. J. S. B. Stopford: The Sympathetic Nervous System.

ANCOATS HOSPITAL POST-GRADUATE LECTURES.
THURSDAY, Nov. 12th.—4.15 P.M., Mr. H. Platt: The Treatment of Common Fractures, with Practical Demonstrations.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Nov. 11th.—4 P.M., Dr. Hastings Gilford: The Prevention of Cancer and Allied Neoplasias.

PEOPLE'S LEAGUE OF HEALTH, Fyvie Hall, Regent-street Polytechnic.
FRIDAY, Nov. 13th.—6 P.M., Prof. Leonard Hill: Prevention of Tuberculosis.

Appointments.

POLLARD, J. M. W., M.D. Lond., has been appointed Senior Medical Officer, West African Medical Staff, Assistant Director of the Medical Service in Nigeria, in succession to Dr. B. Moiser, retired.

WALKER, E. W. AINLEY, M.D., B.Ch., D.Sc. Oxf., Lecturer in Pathology in the University of Oxford for a further period of five years.

WATT, ALEXANDER WILSON, M.B., Ch.B. Glasg., Junior Assistant Medical Officer at the Carlish Mental Hospital.

Certifying Surgeons under the Factory and Workshop Acts: McCOULL, R., L.R.C.P., & S. Edin., L.R.F.P.S. Glasg. (Wylam District of the County of Northumberland); SYMONS, A. D., M.D., B.Ch. Bristol (Shrewsbury).

Vacancies.

For further information refer to the advertisement columns.

Bath, Royal Mineral Water Hospital.—Res. M.O. Asst rate of £130.
Belgrave Hospital for Children, Clapham-road, S.W.—Hon. Radiologist.
Birmingham City Hospitals for Infectious Diseases.—Scn. Asst. M.O. £400.
Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £100.
Capetown, Somerset Hospital.—Res. Med. Supt. £800.
Cardiff, Welsh National School of Medicine.—Lecturer in Pathology and Bacteriology. £750.
Chesterfield and North Derbyshire Royal Hospital.—Res. Surg. O. £300. Fifth H.S. At rate of £100.
East Ham Education Committee County Borough.—Aural Surgeon. £3 3s per session.
Elizabeth Garrett Anderson Hospital, Euston-road.—H.P., Obstet. Asst., and Two H.S.'s. Each at rate of £50. Also Clin. Assts.

Glasgow, Lightburn Joint Hospital, Shettleston.—Res. Phys.-Supt. £350.
Lancaster, Borough of.—Asst. M.O.H. and Asst. Sch. M.O. £500.
Leamington Spa, Warneford General Hospital.—Res. H.P. At rate of £150.
Leyton Urban District Council.—Deputy M.O.H., &c. £600.
London Hospital, Mile End, E.—Asst. P. to Skin Dept. Also Hon. Dent. Surg.
London Lock Hospital, 91, Dean-street, W.—Clinical Assistantships.
Manchester, Barnes Convalescent Hospital, Cheadle.—Res. M.O. £250.
Norwich, City and County of.—M.O.H. £1100.
Oxford, Radcliffe Infirmary and County Hospital.—H.P., H.S., Cas. H.S. and Obstet. H.P. All at rate of £120.
Preston County Borough.—Asst. M.O. for Maternity and Child Welfare. £600.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Anæsthetist.
Rhondda Urban District Council.—Asst. M.O. £600.
Royal College of Physicians, Pall Mall East.—Milroy Lecturer.
Royal Free Hospital, Gray's Inn-road, W.C.—Obstet. H.S., Gynæcological H.S. Also H.S.'s and Asst. Cas. O.
Royal Northern Hospital, Holloway, N.—H.S. At rate of £70. Case O.'s. At rate of £90.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Non. Res. Cas. O. £150. Also H.S. and H.P. Each at rate of £100.
St. Helen's County Borough.—Asst. M.O.H. £600.
Salford Education Committee.—Asst. Sch. M.O. £600.
Scottish Board of Health.—M.O. £500.
Staffordshire General Infirmary, Stafford.—H.P. At rate of £150.
Sudan Medical Service.—Three M.O.'s. £E720.

Births, Marriages, and Deaths.

BIRTHS.

HABGOOD.—On Oct. 24th, at Wolverton House, Old Wolverton, Bucks, the wife of Arthur Henry Habgood, D.S.O., M.B., of a daughter.
PARKINSON.—On Oct. 30th, at 1, Devonshire-place, W., the wife of John Parkinson, M.D., of a daughter.
PULVERTAFT.—On Oct. 25th, at "Cranleigh," Egham, the wife of R. J. V. Pulvertaft, M.B., of a daughter.
SPENCE.—On Oct. 23rd, the wife of Dr. D. Benham Spence, of Clarendon-road, Watford, of a son.

MARRIAGES.

WELLS—MASON.—On Oct. 31st, at St. Mary's, Northleigh, Dr. Arthur Quinton Wells, to Rhona Margaret Alice, second daughter of James Francis Mason and Lady Evelyn Mason, Eynsham Hall.

DEATHS.

BEATH.—On Oct. 27th, in St. Columba's Hospital, London, Nina Henrietta Beath, M.B., Ch.B. Edin., for 20 years missionary of the Presbyterian Church of England in Swatow, China.
DAVIDSON.—On Oct. 28th, at Charmouth, Harold Davidson, M.R.C.S., L.R.C.P., of Teddington.
FOSBROKE.—On Oct. 27th, at Bidford-on-Avon, Warwickshire, George Haynes Fosbroke, M.R.C.S. Eng., D.P.H. Camb., County Medical Officer for Worcestershire.
PARDINGTON.—On Nov. 1st, at Tunbridge Wells, George Lucas Pardington, M.D., M.R.C.P. Lond., M.R.C.S. Eng.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, ST. ANDREWS.—Sir Leslie Mackenzie on Oct. 27th read a paper on the Modern Outlook in Preventive Medicine. He said that the essential basis of all preventive medicine must be the work of the general practitioner, who comes in contact with the raw material. It was the ideal of the public services to give every assistance to the practitioner, and the only obstacle was the tendency of the official mind to be dehumanised and for the public services to become isolated instead of coöperative. Commenting on the remarkable expansion of the public preventive services in recent years, especially in the direction of supervision of expectant mothers and of child welfare treatment, he emphasised the part which must be played by the general practitioner in this development. Such institutions as the James Mackenzie Institute would be a liaison between the practitioner and the authorities. Practice under the Insurance Act was the principal field for this work, and the records obtained from the panel practitioners were very valuable. They were often crude or inaccurate, but taken in mass they gave a clear indication of the ailments responsible for loss of working time and therefore of the morbidity, as distinguished from the mortality, of the community.

Notes, Comments, and Abstracts.

CHILLED AND FROZEN MEAT.*

BY W. J. HOWARTH, C.B.E., M.D., D.P.H.,
MEDICAL OFFICER OF HEALTH FOR THE CITY OF LONDON.

[Dr. Howarth began by paying a tribute to the efforts of the daily press to ensure the supply of pure food to people in all ranks of society. Multiple shops and restaurants with their central store and chemists and supervisors were able to ensure that the articles meet statutory requirements, and he claimed that they had diminished the sale of sophisticated foodstuffs. Going on to deal with the conditions under which food is imported, he mentioned the vast quantities of meat brought into the country in various forms. Safeguards had gradually been introduced to ensure the observance of certain essential requirements—namely: 1. That both home and imported products are in all respects sound and fit for human consumption. 2. That home products are prepared and manufactured in a satisfactory manner. 3. That products which at one time were considered satisfactory have not deteriorated and become unsound and unfit. 4. That the substitution of less desirable substances for those being purchased does not take place. 5. That the addition of objectionable material shall be prevented—e.g., preservatives. 6. That as far as may be possible products shall be composed of materials definitely stated. 7. That in those prepared foods in which certain unavoidable, but at the same time objectionable, contaminations may gain access in the course of manufacture, such contaminations shall be present in minimal and harmless amounts. Dr. Howarth then turned to the subject of refrigeration and substitution, and continued to the following effect:—]

Methods of Refrigeration.

Most of the imported meat arrives in the cold state. It is carried in chambers, the interior of which is chilled by cold, and this chilling may be produced in several ways. The most convenient method is that in which the cold-producing pipes are filled with brine and some portion of the pipes is submerged outside the room in a solution of cold brine. The brine enclosed in the pipes is chilled and made to circulate through the pipes, which are arranged in suitable ratios around the cold room. Goods deposited in cold store should be in a clean, satisfactory condition. Putrefaction is masked by freezing and only fresh material should be admitted, otherwise mustiness will result. Frozen goods which are removed from store for sale and thawed should not be readmitted. Definite responsibility should devolve upon someone to safeguard the public against stores being used to get rid of products which are in an unsatisfactory condition. A register should be kept of the products deposited. The chief requirements of the sanitary authority would be met by registration of stores, the compulsory keeping of a register of materials admitted and released, and free admission of the authority's officers to the different compartments and passages.

The chilling of meat does not retard objectionable changes sufficiently to ensure satisfactory carriage if the journey extends over a period longer than three or four weeks, and for this reason all Australian meat has to be frozen. Argentine meat is chilled, and as such meat on arrival has already almost reached the limits of exposure without deterioration it cannot be kept long after reaching this country; it has to be marketed, sold, and consigned reasonably quickly. To allow of chilled meat being conveyed over longer journeys several methods have been tried, but none of them can be considered to be of any help. Meat, being a putrescible material, may undergo change if there should be a serious breakdown in the refrigerating machinery, and since when it is frozen solid it cannot be examined satisfactorily for possible putrefactive changes, certain signs have to be looked for which indicate that the changes have occurred. Examination of the covers may be of some assistance. The white cloths in which the quarters are wrapped are put on when the carcasses are frozen hard and at that temperature they are dry. If a temperature below freezing-point is maintained during the voyage the cloths will remain dry, they will be non-adherent, and they will not be extensively stained with blood or serum. If, on the contrary, there has been some thawing of the carcasses it is obvious that moisture will be deposited on the surface of the meat, the cloths will adhere thereto, and on refreezing they will be frozen firmly to the carcass. If, therefore, when a large number of carcasses are examined, the cloths are clean and

* Being an abstract of part of a Chadwick Lecture on the Control of the Food Supply delivered at the Royal Sanitary Institute on Oct. 30th, 1925.

do not stick to the surface and do not show long lines of moisture or blood, it is permissible to assume that the meat is in fair condition. If there is any serious doubt an incision through the calico cloth over the convexity formed by the ribs in the forequarters, and over the hollow of the pelvis in the hindquarters, is advisable. If the changes have been pronounced mould growths may be found in these areas.

Recognition of Imported Meat.

As regards substitution there is but little difficulty in recognising even small joints of frozen meat; it often, however, requires a highly experienced man to decide with certainty that certain smaller cuts are chilled and not home-killed. Home-killed carcasses, as a rule, are clean, bright, and tidy in appearance, and carefully dressed. The stifle-joint is often cut across to allow of the escape of synovial fluid, and the fat in the pelvis is often skewered to make it hang in the form of loops. In some districts the carcass is divided into two parts by chopping through the vertebræ for their whole length; in others the spinal column is sawn down as far as the dorsal vertebræ, the remainder being chopped through. The cold and set home-killed carcass is dry and somewhat greasy. On section it will be observed that there is not a large amount of moisture in the tissues, the meat being moist but not wet. The fat is usually yellowish-white in colour, tolerably firm to the touch, and free from suspicion of wetness. The side of a home-killed carcass is generally divided into hind and forequarters between the twelfth and thirteenth ribs, thus leaving one dorsal vertebra on the hindquarter. In imported meat the quarters have never the same well-finished appearance as in home-killed; the spinal column is always sawn down through the whole length, and three ribs are left connected with the hindquarter. These ribs are frequently cut off and sold separately under the name of "wing ribs."

The appearance of a joint of chilled meat may be very little different from that of home-killed on the one hand, or from frozen on the other, according to the care which has been displayed in chilling, in transporting, and on the maintenance of a suitable temperature. At temperatures below 32° F. the meat will assume the characters of frozen meat. The fat of chilled meat often acquires a pinkish hue due to the exuding meat juices, but it may be unchanged except for some roughening of the surface and edges. The outside of the meat is of a dull slate colour where the muscular bundles are exposed. On section the meat shows some excess of moisture which is most apparent on pressure.

Frozen meat is readily recognised by its unfinished appearance; the fat is dead white in colour after defrosting; the carcass in the frozen state is rigid, and the finish in varying degree rough and ragged, owing to the carcasses being packed one on top of another in transportation. Unless previously thawed the outside will be found to be covered with moisture which has condensed from the atmosphere, and on section the muscular tissue is uniformly light in colour and has thus a washed-out appearance. It is moister than either home-killed or chilled meat, the amount of moisture depending partly on the care displayed in thawing. The exposed surfaces of the sawn bones are white in frozen meat; in chilled meat obtained from young animals of good quality they retain the rose-tinted appearance usually seen in freshly killed animals.

THE MEDICAL HAND IN MODERN INDUSTRY.

Dr. Peter Howie delivered a presidential address on this subject at a meeting of the Aberdeen Medico-Chirurgical Society held on Oct. 29th. He pointed out that, contrary to usual belief, recognition of unhealthy conditions of work and trade is no new thing. Hippocrates and Galen drew attention to the dangers of such occupations as mining, pottery-working, lead-smelting, and textile-working; Pliny informed us that in Roman times polishers wore respirators to prevent the inhalation of red lead dust. In 1557 Georgius Agricola, in a book "De Re Metallica," showed that dust in mining operations may produce asthma and even lead to conditions we now recognise as consumption. In 1700 Ramazzini, of Padua, published a book, "De Morbis Artificum Diatriba," dealing with diseases produced by labour and by certain occupations and professions. The removal of unhealthy conditions of trade is, however, another matter, and may more truly be claimed as a modern development. No preventive measures began to arise till the latter part of the eighteenth century, and no very satisfactory results followed till well into the nineteenth.

After describing the horrible conditions of child labour prevalent at the end of the eighteenth century, Dr. Howie referred to the Board of Health of Manchester formed after an inquiry led by Dr. Perceval in 1784, which may be regarded as the root from which all subsequent legislation dealing with the health side of industrial activity has sprung. In 1802 Sir Robert Peel introduced a Bill, which subsequently became law, entitled "Health and Morals of Apprentices Act." During the next 40 years much legislation followed, almost always in the teeth of strong opposition. In 1819 the age of children employed was limited to 9 years, with a 12-hour day for all under 16. In 1825 work on Saturday was limited to 9 hours. In 1832 the first work on the subject by a British medical writer, Dr. Turner Thackrah, of Leeds, was published on "Diseases of Workmen." In 1833 a Royal Commission was appointed to consider the subject, and soon afterwards an Act was passed whereby, among other things, State-paid factory inspectors were first appointed; certificates had to be granted by physicians and surgeons who had to declare the individual "to be of the ordinary strength and appearance of a child of 9 years." Here we had the origin of the certifying factory surgeons, though these were first officially appointed in 1844. During the latter half of the nineteenth century legislation was prolific, and more and more attention was paid to trades and occupations involving dangerous conditions. A Shop Hours Act in 1886 first brought that class of work under control. In a Factory Act of 1891 a specially important point emerged for the first time in that the employment of any woman within four weeks after childbirth was prohibited in any factory. In 1901 another important Act made it compulsory for every practitioner to notify not only the medical officer of health of the local authority but also the Home Secretary of the occurrence of any case of anthrax, and lead, phosphorus, mercurial or arsenical poisoning of industrial origin. The various Acts dealing with Workmen's Compensation are also of great importance, especially those of 1906 and 1918.

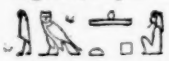
After this historical survey, Dr. Howie went on to consider under three main heads the results achieved and the main lines along which medical science is influencing working conditions and guiding legislative efforts. Considering first industrial activity in relation to the general health of the worker, he pointed out that this is essentially the question of industrial fatigue. The problem is being studied and attacked in many ways, and it is now realised that output can best be attained by health. Many tests are being applied in the endeavour to measure the degree and incidence of this industrial fatigue, and interesting results are being brought to light through this new industrial physiology. For example, observation is proving that rhythm is of the utmost value in work, both in preventing and delaying fatigue and in increasing output; rhythm relieves monotony and aids production. Scientific study of occupational movements is proving of the utmost value by showing where unnecessary movements may be eliminated and output therefore greatly increased. Workers and their machines, benches, or seats are being adapted to each other with excellent results. In many works regular rest periods are introduced, thus lessening monotony and bringing into play a degree of rhythm which seems to be useful in the prevention or delay of fatigue. Other factors are ventilation, temperature, humidity of atmosphere, and lighting, and these are all being studied and the results applied for the benefit of the worker.

After indicating briefly the importance of the different types of industrial disease coming under the cognisance of the Home Office, and those entitling to compensation, Dr. Howie considered the chief methods by which medical knowledge influences industrial conditions. He referred to official control by means of Parliamentary legislation and regulation by the Home Office, carried out through the instrumentality of the factory and mines inspectorate composed of men and women of high technical skill, with a medical inspectorate which is constantly studying conditions of labour and new aspects of disease conditions which might seem to be due to labour or the circumstances under which it is carried out, with the aid of many of the physiological and other laboratories in the country where industrial problems are sent to be solved. In addition, there is a numerous body of certifying surgeons throughout the country, undertaking the routine examinations, often assisting in special investigations, and possessing many powers for safeguarding young workers. There is, finally, the industrial welfare movement, which, beginning in small ways before the war, attained great importance during the war and reached such important dimensions that the Factory Acts now take cognisance of welfare work, and in many cases lay down certain minimum requirements. In large institutions this work is under specially trained and appointed supervisors, for whose training and qualifications the Home Office lays down certain regulations. After describing their duties, Dr. Howie referred to the Industrial Health Education Council, a body whose purpose is to "educate industrial workers on the diseases and sicknesses to which they are liable, with the view to investigating and preventing the same." This body, he said, will prove to be of much service in cases where it is not possible to have welfare schemes and supervisors. The method of work is by means of lectures to bodies of workers themselves, organised by their unions and similar organisations.

I-EM-HETEP.

To the Editor of THE LANCET.

SIR,—The interesting annotation concerning this deity in your issue of Oct. 17th will give much pleasure to those of your readers who enjoy the enthralling history of ancient Egypt. The presentation by Sir Stewart Abram of a permanent jewel bearing on its face the image of I-Em-Hetep to be the badge of office of the President of the Reading Pathological Society leads me to mention that at the foundation of the Nosocomia Lodge of Freemasons in 1909, a Masonic home so to speak for hospital officers, the founders perpetuated the name of this medicine god on the Past-Master's jewel. This jewel was designed by Mr. Chichele Nourse, F.R.C.S. Edin., the second Master of the Lodge, who in his design had engraved upon one side of the square the hieroglyphics



signifying I-Em-Hetep, "He who cometh in Peace," amongst his other titles being those of "Master of Secrets" and "Scribe of Numbers."

With this history I am sure the Reading Pathological Society will allow the founders of the Nosocomia Lodge to share in the honour of having been the first in this country to recognise the claim of I-Em-Hetep to be regarded as the Egyptian Deity of Medicine.

I am, Sir, yours faithfully,

RICHARD KERSHAW.

Central London Throat, Nose and Ear Hospital,
Oct. 20th, 1925.

*** Most fascinating and instructive reading with special reference to I-Em-Hetep (or Hotep) will be found in the Harveian Oration delivered in 1904 by Dr. Richard Caton, entitled The Medicine and Medicine God of the Egyptians (THE LANCET, 1904, i., 1769). We reproduced (1906, i., 855) two photographs of a statuette of this deity from the collection of Signor G. Dattari, of Cairo.—ED. L.

PITCAN PATENT BELTS.

WE have received from Messrs. Carew, Ltd., 47, Lower Belgrave-street, S.W., samples of abdominal belts, intended to reduce undue bulk, support the figure, and correct the results of ptosis, while they may also be used as aids in cases of hernia and conditions resulting from undue strain. The belts, which are well ventilated, are made of a strong durable material and are fitted to the body by means of laces and straps. The firm works, we are informed, only under the orders of medical men and our readers may find the address useful.

SNAKE POISONS.

Dr. A. do Amaral, of the Serum-therapeutic Institute, Sao Paulo, Brazil, has brought out a little book entitled "A General Consideration of Snake Poisoning and Observations on Neotropical Pit-vipers." (Harvard University Press. London: Humphrey Milford. 1925. Pp. 64. 16 plates. 10*s.* 6*d.*) The first part gives a general account of snake poisons, their action and remedies; it is brief and without any bibliography, and does not add much to previous accounts, such as Prof. C. J. Martin's article in Allbutt's "System of Medicine." This is followed by five papers on the diagnosis and variation of snakes of the genus *Bothrops*, useful, no doubt, to specialists, and beautifully illustrated with coloured and plain figures of the dorsal markings. Apart from their morphological interest these plates might be studied with advantage by those in search of new colour designs.

A CENTURY OF MARINE HISTORY.

THE evolution of the sailing ship and the steam ship is of interest to medical men because the "sea voyage" is a well-recognised and often effective method of treatment. For this reason we call the attention of our readers to a well-printed and well-illustrated book[1] of some 80 pages which has been privately published in commemoration of the centenary of the Aberdeen S.S. Line. The compilation of the book has been entrusted to the well-known writer Mr. L. Cope Cornford, who in telling the story of the progressive development of the Aberdeen Line incidentally indicates how the proud position of British shipping to-day can be traced to the foresight, courage, and industry of men like George Thompson, founder of the Aberdonian venture in 1825. Among the fine illustrations of the company's vessels are the *Childe Harold*, 116 tons, one of the earliest of the fleet, and the s.s. *Sophocles*, 12,361 tons, one of the latest, with greatly improved passenger accommodation, and the contrast between the brig and the modern liner tells better than words the progress made in 100 years. The present fleet now sail regularly to and from London, Portsmouth, Tenerife, Cape Town, Melbourne, Sydney, and Brisbane. The same steamship line also issue a small illustrated brochure in which the story is told more briefly.

[1] The Sea Carriers, 1825–1925: The Aberdeen Line. By L. Cope Cornford, with a preface by Viscount Burnham. Published by George Thompson, Ltd., 7, Billiter-square, London, E.C.

CONISHEAD PRIORY HYDRO.

Conishead Priory was founded during the reign of Henry II., and is situated two miles from Ulverston, by the shores of Morecambe Bay. It was dismantled by Henry VIII., and as a residence it passed through the hands of many famous families, notably the Braddyls, before being acquired as a hydro in 1878. The fine buildings, the beauty of the site and its proximity to the Lake District, combine to make the hydro attractive, and the directors have now newly furnished and decorated it throughout. There is an 18-hole golf course at Ulverston and hard and grass tennis courts in the grounds; dancing is provided for, and it is intended that the place shall be an ideally comfortable winter residence. The hydropathic department was reopened on Oct. 1st, under the direction of Mr. John Wishart, M.D., D.Sc., and contains electrical and other equipment. Sea-water is pumped up daily from Morecambe Bay for bathing purposes, and a new Conishead Priory health course will be given during any four weeks of the winter season at a minimum cost of 20 guineas, exclusive of medical fees.

THE LATE MAJOR-GENERAL SIR HARRY THOMPSON.

To the Editor of THE LANCET.

SIR,—A wish has been expressed by relatives of the late Major-General Sir Harry Thompson, K.C.M.G., C.B., D.S.O., late R.A.M.C., that his services should be commemorated. They will contribute to that end. Knowing that, in addition, there are many of his friends (civil and military) who desire to join in some material tribute to his memory, I venture to ask your kindly aid in publishing this appeal for funds to this purpose. The decision as to the most suitable form for the memorial to take should, it is considered, be left in the hands of the Harry Thompson Memorial Committee, who will be guided by the sum collected and the wishes expressed by the subscribers. Subscriptions should be sent to Messrs. Glyn, Mills and Co. (Holt's Branch), 3, Whitehall-place, S.W., the treasurers of the fund, or to the undersigned. All contributions will be acknowledged.

I am, Sir, yours faithfully,

S. G. GUISE-MOORES,
Major-General.

Osborne House, East Cowes, Isle of Wight, Nov. 1st, 1925.

UMBILICAL HERNIA.

To the Editor of THE LANCET.

SIR,—I am in my eightieth year and have long suffered from an umbilical hernia, of about the size of an ordinary walnut on protrusion. I have consulted many of my London medical friends about it and they have all taken a great deal of trouble, recommending belts of various descriptions. The belts all get out of position after a little time unless they have perineal bands, which are an abomination. For several years now I have been in the habit of applying a cotton-wool pad covered with indiarubber over the hernia after first reducing it. The pad is kept in position with one inch wide strips of "ZO" adhesive plaster, made by Johnson and Johnson, New Brunswick, N.J., U.S.A., and I have found that this never irritates the skin and only wants changing once a fortnight, although I have a warm bath every morning. I enclose my card, and am, Sir,

Yours faithfully,

Oct. 28th, 1925. M.R.C.S.

THE WINDOW WITHOUT A VIEW.

To the Editor of THE LANCET.

SIR,—Recently I paid a visit at a charming house which had been built but a few years. Opening the gate leading from the road, a tasteful garden met the eye; and a path, paved with crazy stones, led to the old-fashioned door. The external architectural features were pleasing. Little turrets, circular windows, overhanging eaves, and tiled roofs all combined to form a pleasant picture. I was shown into a prettily furnished drawing-room, and later conducted by the lady of the house into a large study with a wonderful fireplace, and into other rooms well designed. Everything seemed just right. But no! There was something wrong. We sat down and our hostess said she would like my opinion of the roses in the garden just outside. I could not see any roses. I could not see any garden. The fleecy clouds floating in the blue sky were visible, but that was all. You ask "Why?" Because the windows were set so high. One had to stand up to see out. I was told the bedrooms and nursery had the same fault, and a platform had to be built for the children so that their heads could be above the window level. The value of plenty of light and air has never been recognised so clearly as at the present time. It is hoped that architects, besides making provision for an abundance of these, will give us a view. We don't want to live in a glorified prison.

I am, Sir, yours faithfully,

Nov. 2nd, 1925. MEDICUS.